

MARCH 2022

THE MARKET FOR SHORT-TERM DEBT SECURITIES IN EUROPE: WHAT WE KNOW AND WHAT WE DO NOT KNOW

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Disclaimer:

The views expressed in this paper are those of its author. They do not necessarily reflect the position of the AMF or of the ESRB. The analysis points at some potential data quality issues. We tried to understand the origin of visible jumps and discontinuities in the aggregate series, and in one case corrected a data point that we could relate to a unit mistake. However, future data quality checks and subsequent revisions of the underlying individual series might allow for a more robust overview of the market for short-term debt securities.

Acknowledgement:

I wish to thank Camille Graciani (ESRB Sec) for initiating this project under the auspices of the Policy Task Force of the Non-Bank Expert Group (NBEG), and for asking me to work on this fascinating topic. I would like to acknowledge his support all along the preparation of this document. He arranged the data sharing process with ESRB and Banque de France, pointed at background documentation to handle the databases, and provided me with very helpful comments on an earlier version of this paper. I would also like to express my gratitude to Lars Brausewetter (ESRB Sec) who, together with Camille, generated the aggregated extracts of CSDB and SHSS that allowed me to construct the graphs presented in Section 4. Of course, all remaining errors or omissions are mine.

INTRODUCTION

In March 2020, as the Covid pandemic was worsening and as Governments around the world were imposing lock-down measures to contain it, money market funds (MMFs), especially in Europe and in the US, experienced large redemption pressures.

The shock was not homogenous though. Initial analyses from the International Organization of Securities Commissions (IOSCO)¹, the European Systemic Risk Board (ESRB)² and the Autorité des marchés financiers (AMF)³ highlighted structural differences according to:

- 1) the underlying assets (e.g. USD denominated public debt MMFs – whether onshore in the US or offshore in Luxembourg and Ireland – experienced large inflows, while USD-denominated funds holding private debt recorded high redemptions);
- 2) the regulatory regime (e.g. in Europe on the short-term MMF segment, where low volatility net asset value funds – LVNAV – experienced the largest outflows, while equivalent short-term variable net asset value funds – VNAV – funds did not record outflows overall);
- 3) the maturity profile (e.g. contrary to short-term VNAV, longer maturity VNAV did experience outflows on a substantial scale – yet not to the extent of short-term LVNAV, especially considering that about half the redemption pressure experienced by standard VNAV during the March 2020 episode could actually be explained by a long-observed quarterly cyclical in flows that is specific to this type of MMFs).

MMFs did undergo a lot of tension during the March market turmoil. They were therefore scrutinized in much detail by the Financial Stability Board (FSB) which designed policy proposals to enhance their resilience.⁴ In parallel, the ESRB developed a Recommendation to the European Commission with a view to its 2022 review of the European Money Market Funds Regulation (MMFR)⁵.

Yet MMFs should not be considered in insulation but rather as a key element in the broader ecosystem of short-term finance. ESRB (2021) pointed that investigations were still necessary to understand both the short-term securities markets on which MMF invest, and the behavioral reactions that characterized MMF investors during the crisis. The causal relationship between the freeze on the short-term debt securities market (which triggered central banks interventions) and the redemptions on MMFs is indeed still unclear, but in any case the crisis revealed structural vulnerabilities, data gaps and regulatory uncertainties on this market. On the investor side, more than a year after the March turmoil, work still needs to be done to fully understand the role of investors and corporates in the initial redemption pressure (among the reasons generally quoted or identified are actual or anticipated operational cash needs, fears of first mover advantage on stable-NAV funds, margin calls) and the subsequent record high inflows over the second semester of 2020.

This document was developed to feed into the ESRB's reflections on MMFR. It aims at presenting background elements on the European market for short-term debt securities, clarifying concepts and terminology, and shedding lights on data gaps and overlaps in coverage from various sources that still hamper a proper diagnostic on the events of March 2020.

¹ International Organization of Securities Commissions (2020). [Money Market Funds during the March-April Episode – Thematic Note](#). OR03/2020 – November 2020.

² European Systemic Risk Board (2021). [Issues note on systemic vulnerabilities of and preliminary policy considerations to reform money market funds \(MMFs\)](#). July 2021.

³ Darpeix, Pierre-Emmanuel and Natacha Mossion (2021). [Detailed analysis of the portfolios of French money market funds during the Covid-19 crisis in early 2020. AMF Risk and Trend Mapping](#), May 2021.

Darpeix, Pierre-Emmanuel (2021). [Econometric analysis of the determinants of redemption flows on French Money Market Funds during the 2020 crisis. AMF Risk and Trend Mapping](#), July 2021.

⁴ Financial Stability Board (2021). [Policy proposals to enhance money market fund resilience – Final Report](#). 11 October 2021.

⁵ European Systemic Risk Board (2022). [Recommendation of the European Systemic Risk Board of 2 December 2021 on reform of money market funds \(ESRB/2021/9\)](#). January 2022.

In the first section, we provide some insights about the general features of the short-term debt instruments, recall some practical market definitions, and indicate how these instruments are treated under the European legislation.

In the second section, we describe the main market segments for short-term market securities, namely the Euro Commercial Paper (Euro-CP), the Negotiable European Commercial Paper (NEU-CP), the market for short-term treasury bills and the other (smaller) domestic Commercial Paper (CP) and Certificate of Deposit (CD) markets. For each of these segments, we conduct a stock-taking exercise of the available information and public data sources, and point the data gaps.

The third section summarizes interim conclusions on the initial diagnosis.

In the fourth section, we provide the first assessment of the consolidated short-term debt securities market building on the Centralised Securities Database (CSDB), which compiles information on securities issued in the European Union, on securities issued elsewhere by European issuers, and on securities likely to be held by European investors. This database was provided by the European Systemic Risk Board (ESRB).

In the last section, we take a step back and highlight other missing elements from the diagnosis of the March 2020 turmoil: indeed, several key dimensions of the crisis are still largely unaddressed and deserve proper investigation.

1. BACKGROUND DEFINITIONS, REGULATORY FRAMEWORK AND PERIMETER OF THE PAPER

First and foremost, we need to describe as clearly as possible what we mean by the *market for short-term debt securities in Europe*. Indeed, the terminology can be very confusing, with many overlaps.

The short-term debt instruments we are considering in this analysis are either **Commercial Paper (CP)**, **Certificates of Deposit (CD)** or **Treasury bills**.

Those are generic terms that are not necessarily precisely defined by law. The “short-term” maturity is generally deemed to be less than a year.

According to the IMF (2003), a CP is an “*unsecured promise to pay a certain amount on a stated maturity date, issued in bearer form*”, while a CD is “*a certificate issued by a bank acknowledging a deposit in that bank for a specified period of time at a specified rate of interest*”, essentially in the form of “*negotiable time deposit*”. On the other hand, Treasury bills are “*a common form of sovereign short-term debt*”.⁶ Treasury bills are generally named in the official language of the country which issues them, and consequently, a large number of labels do exist in this category.

If we were to simplify the picture, we could say that CP, CD and Treasury bills essentially differ by the type of institution that issue them. CP are mostly issued by Non-Financial Corporates (NFCs), CD are issued almost exclusively by banks, while Treasury bills can only be issued by sovereign States. Yet the reality is slightly more complex, as some banks, sovereign states and public entities also issue CP, while other financial institutions belonging to industrial conglomerates can issue CD.

Taken together, Treasury bills, certificates of deposit and commercial papers are generally called **Money Market Instruments (MMI)**.⁷

According to European law (MiFID 2), money market instruments are “**financial instruments**”⁸, yet they are not necessarily “*transferable securities*” (i.e. they are not necessarily “*negotiable on the capital markets*”).⁹ The issue

⁶ See IMF (2003), [External debt statistics, Guide for compilers and users \(Appendices\)](#):

“**Commercial Paper (CP)**: Commercial paper is an unsecured promise to pay a certain amount on a stated maturity date, issued in bearer form. CP enables corporations to raise shortterm funds directly from end investors through their own in-house CP sales team or via arranged placing through bank dealers. Short-term in nature, with maturities ranging from overnight to one year, CP is usually sold at a discount. A coupon is paid in a few markets. Typically, issue size ranges from \$100,000 up to about \$1 billion. In bypassing financial intermediaries in the short-term money markets, CP can offer a cheaper form of financing to corporations. But because of its unsecured nature, the credit quality of the issuer is important for the investor. Companies with a poor credit rating can obtain a higher rating for the issue by approaching their bank or insurance company for a third-party guarantee, or perhaps issue CP under a MOF (Multiple Option Facility), which provides a backup line of credit should the issue be unsuccessful.” (Index, p.223)

“**Certificate of Deposit (CD)** : A certificate issued by a bank acknowledging a deposit in that bank for a specified period of time at a specified rate of interest; CDs are essentially a form of negotiable time deposit (evidenced by the certificate). CDs are widely issued in the domestic and international markets, and are typically bearer instruments, issued at face value with original maturities of one to six months, although there have been maturities of up to seven years. Typically, interest costs are payable at maturity for issues of one year or less, and semiannually on longer issues. The rate of interest on a given CD depends on several factors: current market conditions, the denomination of the certificate, and the market standing of the bank offering it. Typically, CDs are highly liquid instruments, which allows banks access to a cheaper source of funds than borrowing on the interbank market.” (Index, p.222)

“**Treasury Bills**: A common form of sovereign short-term debt; many governments of the world issue treasury bills. Typically issued through the central bank with maturities ranging from four weeks to two years, they are typically issued at a discount to face value and are redeemed at par.” (Index, p.235)

⁷ For instance, Art.4(1)(17) of [MiFID II](#) (Directive 2014/65/EU) states that “*money market instruments means those classes of instruments which are normally dealt in on the money market, such as treasury bills, certificates of deposit and commercial papers and excluding instruments of payment*”. The definition is even clearer in the [Commission Delegated Regulation \(EU\) 2017/565](#) (Art.11): “*Money-market instruments in accordance with Article 4(1)(17) of Directive 2014/65/EU, shall include treasury bills, certificates of deposits, commercial papers and other instruments with substantively equivalent features where they have the following characteristics: (a) they have a value that can be determined at any time; (b) they are not derivatives; (c) they have a maturity at issuance of 397 days or less.*”

⁸ See Section C (Financial Instruments) in the Annex I of [MiFID II](#).

⁹ According to the definition set out in Art.4-1-44 of [MiFID II](#).

is that the obligations to report transactions to the securities regulator depends on this feature (Article 26, MiFIR).¹⁰ Treasury bills are generally admitted on at least a trading venue, but this is only seldom the case for CP and CD, on which therefore transactions do not have to be reported.

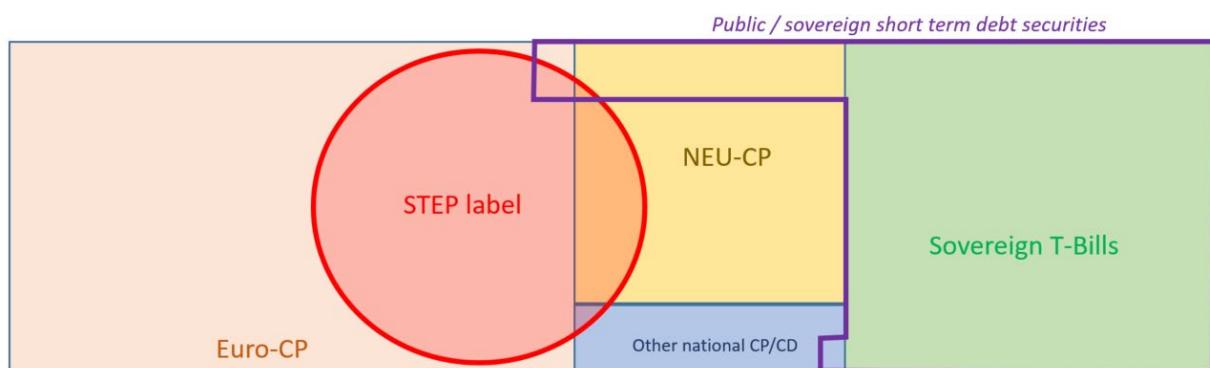
Additionally, securities supervisors do not receive prospectuses of CP or CD for approval prior to issuance (contrary to other types of securities) given that the Prospectus Regulation applies to “securities”, which are defined in its Article 2 with reference to MiFID 2 “transferable securities” while explicitly excluding “money market instruments”.¹¹ Under French national law however, the Banque de France is responsible for the oversight of the financial documentation of the NEU-CP issuance programs.¹²

As for the geographical perimeter, we focus not only on the European Union, but extend it to include other Western Europe countries (Switzerland, Norway, Iceland, and most importantly the United Kingdom), given their close links to the EU market, because issuers from these countries issue short-term debt securities in the EU and because reciprocally EU entities do issue short-term debt securities in their national currencies. Eventually, this inclusion is warranted by the central role of the UK for the Euro-CP market (see next section).

2. COMPONENTS OF THE SHORT-TERM SECURITIES MARKET IN EUROPE

The European short-term debt securities market is actually extremely fragmented. Broadly speaking, it is composed of four main blocks: the market for negotiable European commercial paper (**NEU-CP**), the market for Euro commercial paper (**Euro-CP**), the **other national commercial paper/certificate of deposit (CP/CD) markets**, and the market for **sovereign short-term bills**. In addition a label called “STEP” (an acronym standing for “Short-Term European Paper”) has been set up by industry bodies to standardize the short-term securities, and this label can apply to any European CP/CD.

Figure 1 : Attempt to represent the structure of the short-term debt market in Europe



Source: Author

Note: the diagram is a first attempt to illustrate our understanding of the short-term debt securities market in Europe. The areas represent qualitatively the relative size of each segment, to the best of our knowledge (i.e. the Euro-CP market is larger than the T-bills markets, then comes the NEU-CP market and other national CP/CD make the rest). The overarching STEP label does not apply to Treasury bills, but it can be obtained by CP programs issued by public entities.

¹⁰ In the exact words of MiFIR ([Regulation \(EU\) 600/2014](#), Art. 26), obligations to report transactions apply in particular to “financial instruments which are admitted to trading, or traded on a trading venue or for which a request for admission to trading has been made”.

¹¹ See [Regulation \(EU\) 2017/1129](#), Art 2(a). “securities” means transferable securities as defined in point (44) of Article 4(1) of Directive 2014/65/EU with the exception of money market instruments as defined in point (17) of Article 4(1) of Directive 2014/65/EU, having a maturity of less than 12 months”.

¹² See Art [L.213-4](#) of the French Monetary and Financial Code.

2.1. NEU-CP (NEGOTIABLE EUROPEAN COMMERCIAL PAPER)

Under French law, short-term (maturity of less than one year) and medium-term (maturity above one year) debt securities are called *Titres de créance négociables* (TCN, literally “negotiable debt securities”) as opposed to longer maturity *Obligations* (bonds).¹³

The issuance of TCN is supervised by the Banque de France ([Art L213-4](#) of the Monetary and Financial Code). Before 2016, medium-term debt securities were named *Bons à moyen terme négociables* (BMTN), while shorter term private papers were labeled *Billets de trésorerie* (CP) and *Certificats de dépôt* (CD).

In 2016, the Reform of the negotiable debt securities market introduced the standard “NEU-CP” (Negotiable EUropean Commercial Paper) and opened up the French-based CP/CD market more broadly to international issuers and investors (in particular by allowing the financial documentation to be written in languages other than French).¹⁴

With this reform, the distinction between CP and CD vanished, as both types of short-term securities are now labeled NEU-CP (yet the Banque de France offers a decomposition by issuer type, according to the divide bank/other-financial/non-financial/public¹⁵). TCNs with an initial maturity above one year (previously called BMTN) are now called NEU-MTN (Negotiable EUropean Medium Term Notes).

This market is organized and regulated by the Banque de France. General information about the key features of NEU-CP is presented on a dedicated section of its institutional website.¹⁶ In particular, NEU-CP have a maturity of at most one year. The minimum amount is €150,000 and NEU-CP can be issued in EUR or in any other currency.

The primary market is rather transparent. The Banque de France maintains a public list of issuers, with a centralized access to the issuance programs’ legal documentations.¹⁷ Note however that information about the actual interest rate and ISIN code of any given issuance under an issuance program is not publicly available.

The Banque de France also publishes an average weekly issuance rate, broken down by maturity and by rating bucket.¹⁸ Detailed information on weekly volumes of CP issuance, matured CP and outstanding amounts of CP at the issuer level is available on the website in the so-called “Data weekly excel forms”.¹⁹

Full history of monthly analyses is available permanently (with an additional breakdown by currency).²⁰

In short, except for the actual issuance rate and for the ISIN code of each issuance, the primary market is fairly transparent, and the relevant data is compiled in a single website. This explains why much of the analysis conducted on the European short-term debt securities market focuses predominantly on this segment.²¹

As of end July 2021, the Banque de France reports an outstanding amount of NEU-CP worth €260bn, of which €101bn issued by NFCs and €159bn issued by financial issuers. 85% of this debt was issued in EUR.²²

¹³ Cf [Code monétaire et financier](#), Partie Législative, Livre II, Titre Ier, Chapitre III (articles L213-0-1 à L213-35).

¹⁴ See Banque de France et Direction générale du Trésor (2016). [Reform of the negotiable debt securities market \(TCN\)](#). May 2016.

¹⁵ Note that there are indeed public issuers on the NEU-CP market (e.g. local and regional administrations, social security bodies and public hospitals), but we found no sovereign states among the current issuers.

¹⁶ See Banque de France’s website: [Key features of commercial paper and medium term notes](#).

¹⁷ See Banque de France’s website: [List of Issuers](#).

¹⁸ See Banque de France’s website: [Weekly statistical review](#). Note that only the 6 last weeks appear on display in this page, but older reports can still be accessed by changing the date directly in the hyperlink.

¹⁹ See for instance Banque de France’s website : [Statistical reports – Weekly Review from 07/08/2021 to 13/08/2021](#).

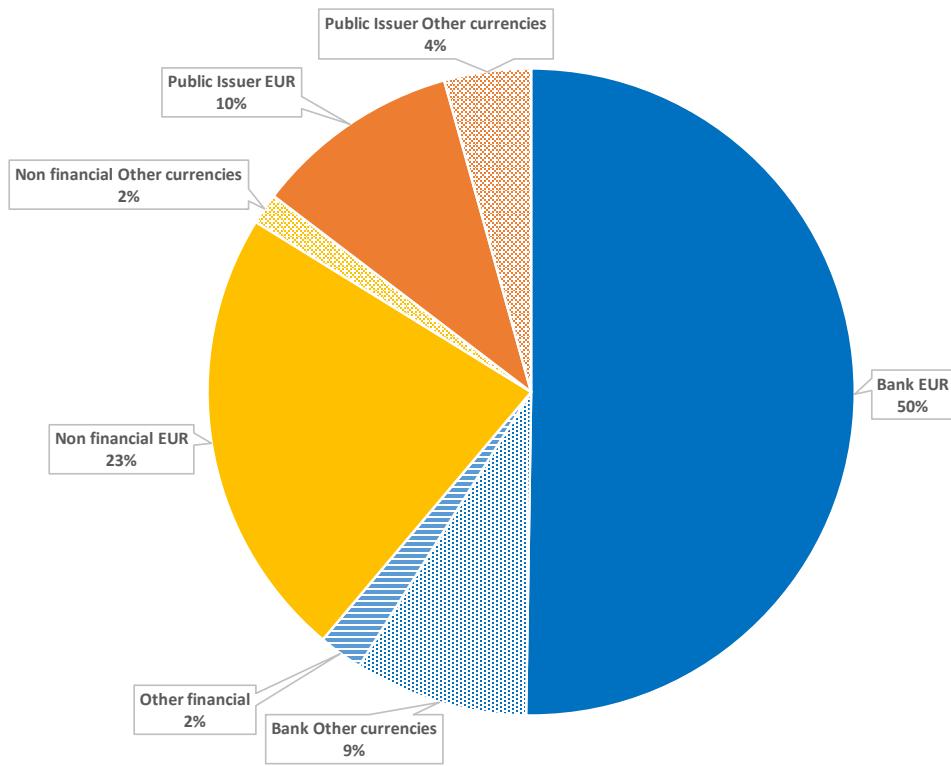
²⁰ See Banque de France’s website: [Monthly statistical review](#).

²¹ See e.g. ICMA (2021). [The European Commercial Paper and Certificates of Deposit Market – A white paper by the ICMA Commercial Paper Committee](#). September 2021, 29p. : Eight graphs relate to the NEU-CP market against only three for the larger E-CP market.

See also ECB (2021). [Euro money market study 2020 – Money market trends as observed through MMSR data](#). April 2021, 96p (in particular [see Chapter 3: The short-term debt securities segment](#), pp. 42-58): There again, the analysis focuses on NEU-CP and STEP paper.

²² See the July report on [Commercial paper](#).

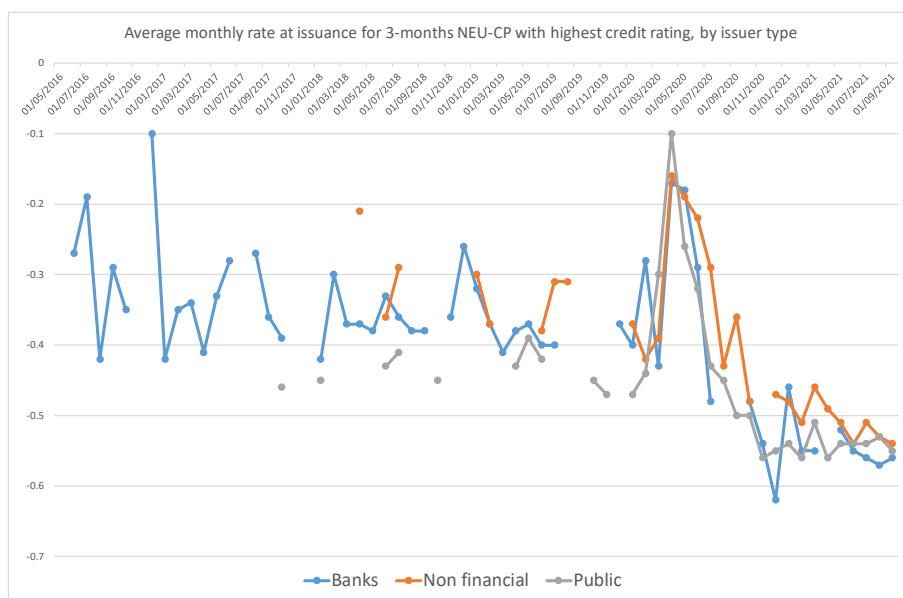
Figure 2 : Structure of the NEU-CP outstanding as at end-July 2021



Source: Banque de France, July 2021 Report on Commercial Paper

Note: Asset Backed Commercial Papers (ABCP) are included in the 'Other financial' category. As of end-July 2021, there were €4.8bn of ABCP outstanding under a NEU-CP program.

Figure 3 : Average monthly rate at issuance for 3-months NEU-CP with highest credit rating, by issuer type



Source: Banque de France, Monthly statistical review

Note: when there is no data point, it means that the average could not be computed (no or too few issuances).

There is much less information on the secondary market, which is essentially OTC. The Banque de France does not report any information on the prices and volumes exchanged, nor does it on bid/ask quotes and volumes. No information is available regarding central bank interventions characteristics on this specific market: indeed, we do not even know the total amount of NEU-CP that were purchased by central banks during the pandemics (the only available information on the purchases of the European System of Central Bank aggregates NEU-CP with other types of CP – see Section 3.3).

2.2. EURO COMMERCIAL PAPER, E-CP OR EURO-CP

The market for Euro-CP appears much less consolidated than the NEU-CP market. Despite their name, Euro-CP can be labelled in EUR or in any other currency (“Euro” stands for the domiciliation in Europe, just as it was common to talk of Euro-dollar to refer to the offshore dollar funding, from the US point of view).

Along this line, the International Capital Market Association (ICMA) report issued in 2021 emphasizes that “The Euro Commercial Paper (ECP) market began life in 1985 *as a means for issuers to tap the offshore short-term USD market outside of US jurisprudence*” (emphasis ours) and adds in a footnote that Euro-CP cannot be sold to US domiciled investors due to a lack of compliance with an SEC exemption.²³

It appears that most Euro-CP are governed by English law and that the minimum amount that it is possible to issue is \$500,000 or equivalent in other currency.²⁴ ICMA indicates that the market is “traditionally based in London” and “largely absorbed the UK domestic sterling CP market”. No legal documentation on the requirements and definitions can easily be found on the internet, and there is uncertainty as to which authority (if any) actually supervises the market.

There is no centralized public database providing a consolidated view on the Euro-CP market. Using data from the private data provider “CMFportal.com”, ICMA (2021) estimates the Euro-CP market to represent an outstanding of slightly less than USD 1,000bn as of March 2021 (42% in EUR, 33% in USD and 18% in GBP).²⁵

There is some information about the primary market that is published on the Bank of England’s website. The Bank of England’s database provides monthly data on issuances and repayments, by sector, domiciliation of the issuer and currencies, but resorts to the general abbreviation of “CP”²⁶. It is therefore not clear whether it is only referring to Euro-CP, and a significant effort of reconciliation should probably be undertaken not to double count issuances of other types of CP in these series (e.g. a UK firm that would issue NEU-CP).

It also indicates data on outstanding amounts of CPs (GBP, EUR, other currencies) issued by UK-resident banks, as well as data on UK-resident banks’ holdings of CP issued by UK-resident banks with a further decomposition according to the ownership of the UK-resident bank (e.g. Japan-Owned, EU-Owned... see detailed Appendix 1).

As of 31/07/2021, UK resident Monetary and Financial Institution (MFIs) had issued £121bn CPs in GBP and £170bn in foreign currencies (including £56bn in EUR). In total, UK-resident banks’ CPs outstanding amounted to £291bn by end-July 2021, yet UK-resident banks were only holding less than £5bn of these CP.

No information is publicly available on the amounts outstanding from other types of issuers and the BoE provides no information on rates at issuance.

²³ ICMA (2021). [The European Commercial Paper and Certificates of Deposit Market – A white paper by the ICMA Commercial Paper Committee](#). September 2021, 29p.

²⁴ See e.g. Ombrane [webpage on Euro CP](#)

²⁵ ICMA (2021) also reports that ABCP issued under an Euro-CP programme were amounting to an outstanding of \$39bn as of June 2019 (against \$6bn for NEU-CP), see p.14.

²⁶ See [Bank of England Database](#).

Euroclear provides some further insights on the market: average daily yields for 1 month and 3 month Euro-CP primary issuances settled on its books (Euroclear Bank), broken down by currency (EUR, USD and GBP).²⁷ It should be noted that yields are no longer reported for EUR issuances since March 2016. A further decomposition by issuer type and rating is available at a weekly frequency. The outstanding amounts on which these yields are computed are not disclosed, and we do not know how representative this data is.

The secondary market is again mostly OTC, with very limited information on volumes, prices, and positions.

2.3. OTHER NATIONAL CP/CD MARKETS

Other national CP/CD markets are more fragmented and there is little information. According to ICMA (2021), “there are a number of other, well-established domestic CP markets, mainly serving domestic issuers and investors. These include Belgium, Germany, and Spain. Meanwhile, some jurisdictions are in the process of developing their own domestic CP markets, notably Italy.”

2.4. SOVEREIGN SHORT-TERM BILLS

The sovereign short-term debt instruments issued by the European States can take several forms. The most widespread appears to be the **Sovereign short-term bills**, issued on specific auction platforms, with a limited number of auction participants, generally called *Primary Dealers*.

The European Commission recently issued EU-Bills for €5bn on the Banque de France’s TELSAT auction platform²⁸. This platform is also the one used for the issuance of the French Treasury Bills (*Bons du Trésor à taux fixe et intérêt précompté – BTF*) and longer term bonds (*Obligations assimilables du Trésor – OAT*)²⁹. Italian *Buoni del Tesoro*, German *BuBills*, Spanish *Letras del Tesoro* are other examples of auction-type short-term sovereign debt instruments. In some countries, two types of short-term sovereign treasury instruments coexist: This is the case for Hungary (“Discount Treasury Bonds” and “one-year Hungarian government securities”) and in Ireland (“Treasury Bills” and “Exchequer Notes”).

Some sovereign Treasuries are also issuing on the CP markets (i.e. either on the Euro-CP market, or on the US CP market, or even on their domestic CP market³⁰). For instance, the Belgian, Dutch, Danish, Irish and Swedish Treasuries report issuing Euro-CP. The Austrian Treasury mentions issuances of Austrian CP (yet these securities are ruled by British law) while the Italian Treasury indicates that it issues “CP” (interestingly enough, Italian sovereign CP seem to be called “Treasury Bills” in the legal documentation³¹). Eventually, the Danish and Dutch Treasuries are also issuing on the US CP market. This illustrates both the fragmentation of the market for short-term debt securities as well as the issues of interconnectedness and substitutability of such securities.

In Table 1 below, we list all the information on short-term public debt that we could gather from the websites of the European Union countries’ national treasuries and central banks.

²⁷ See Euroclear’s website : [Euro Commercial Paper](#).

²⁸ See European Commission’s website: [The EU to use the TELSAT auction platform by Banque de France for its auctions as of September 2021](#) (17 May 2021).

²⁹ See Agence France Trésor’s website: [The Banque de France](#).

³⁰ Even if public issuers are present on the NEU-CP market (local and regional administrations, public hospitals, social security bodies, ...), there are no traces of Sovereign issuances of NEU-CP (no central government). See the Banque de France Website: [list of issuers](#).

³¹ See Italian Department of the Treasury, [Legal Documentation on international funding program](#), Commercial paper programme section.

*Table 1: List of EU national Short-term sovereign securities
(amounts in € or in national currencies correspond to the latest available value when the research was conducted, in September/October 2021)*

Country	Name in English	Original name	Acronym	€bn	National currency bn	Hyperlink to the National Treasuries or Central Banks were the information was retrieved.	Additional CP programs ?
Austria	Austrian Treasury Bills	Austrian Treasury Bills	ATB	4	-	https://www.oebfa.at/en/financing-instruments/tbills.html	Austrian CP
Belgium	Treasury Certificates	Certificats de Trésorerie	CT	26	-	https://www.debtagency.be/fr/produit/certificats-de-tresorerie-ct/productctinfo	Euro-CP
Bulgaria		N/A				https://www.mirfin.bg/en/statistics/20	
Croatia	Treasury Bills	Trezorski zapisi			17	https://mfin.gov.hr/glavni-izbornik-2725/highlights-2848/public-debt/2869	
Cyprus	Treasury Bills	Γραμμάτια Δημοσίου		1.45	-	https://www.mof.gov.cy/mof/pdmo/pdmo.nsf/page43_en/page43_en?OpenDocument	Euro-CP
Czech Republic	Treasury Bills	Státní pokladniční poukázky	SPP		331	https://www.cnb.cz/en/financial-markets/treasury-securities-market/	
Denmark	Treasury Bills	Skatkammerbeviser			60.3	https://www.nationalbanken.dk/en/governmentdebt/auctionsandissuance/Pages/Auction-results---T-bills.aspx	Euro-CP / USCP
Estonia	Treasury Bills	Lühiajalised vöölkirjad	ETB	0.4	-	https://www.rahandusministeerium.ee/en/node/60349	
Finland	Government Treasury bills	Valtion velkasitoumuksset			16.4	https://www.treasuryfinland.fi/funding-instruments/government-treasury-bills/#646b5024	
France	Fixed-rate discount Treasury bills	Bons du Trésor à taux fixe et à intérêt précompté	BTf		151	https://www.aft.gouv.fr/en/btf-characteristics	
Germany	Treasury discount paper	Unverzinsliche Schatzanweisungen	Bubills	156	-	https://www.deutsche-finanzagentur.de/en/institutional-investors/federal-securities/treasury-discount-paper/	
Greece	Treasury Bills	Εντοκα Γραμμάτια			12.6	https://www.pdma.gr/en/debt-instruments-greek-government-bonds/issuance-calendar-a-syndication-and-auction-results/t-bills-historical-data/52-week	
Hungary	Discount Treasury Bond	Diszkont Kincstárjegy			?	http://www.allamkincstar.gov.hu/en/main/types-of-government-securities	
	One Year Hungarian Government Securities	Egyéves Magyar Állampapír			?	http://www.allamkincstar.gov.hu/en/main/types-of-government-securities	
Ireland	Treasury Bills	Tresury Bills			4.5	https://www.ntma.ie/business-areas/funding-and-debt-management/government-securities/short-term-instruments	Euro-CP
	Exchequer Notes	Exchequer Notes				https://www.ntma.ie/uploads/general/Exchequer-Notes-Terms-and-Conditions.pdf	
Italy	Treasury Bills	Buoni ordinari del Tesoro	BOT	144	-	http://www.dt.mef.gov.it/en/debito_pubblico/titoli_di_stato/quali_sono_titoli/bot/index.html	CP
Latvia	Treasury Bills	IEKŠĒJĀ AIZŅĒMUMA parādzīme			0	https://www.kase.gov.lv/en/debt-management/securities-in-domestic-capital-markets	
Lithuania	Treasury Bills	iždo vekselius			0	https://finmin.lrv.lt/en/competence-areas/state-debt-management/government-securities/government-securities-auctions	
Luxembourg	Treasury Certificates	Certificats de Trésorerie			0	https://te.public.lu/fr/dette_publique/court_terme.html	
Malta	Malta Treasury Bills	Bills tat-Tezor ta' Malta			0.6	https://treasury.gov.mt/en/Pages/Debt_Management_Directorate/Treasury_Bills.aspx	
Netherlands	Dutch Treasury Certificate	Schatkistpapier	DTC		24.7	https://english.dsti.nl/news/statistical-information/monthly-reports/2018-to-now	Euro-CP / USCP
Poland	Treasury Bills	Bony skarbowe			0	https://www.gov.pl/web/finance/t-bills-and-t-bonds	
Portugal	Treasury Bills	Bilhetes do Tesouro	BT	12.5	-	https://www.igcp.pt/en/1-4-399/debt-instruments/treasury-bills-bt/	
Romania	Treasury Certificates	Certificate de trezorerie	CT		7.5	https://www.bnro.ro/Government-Securities-5676-Mobile.aspx	
Slovakia	Treasury Bills	Štátne pokladničné poukážky	ŠPP	0	-	https://www.ardal.sk/en/government-securities/treasury-bills	
Slovenia	Treasury Bills	Zakladne menice			1.5	https://www.gov.si/en/topics/borrowing-and-state-budget-debt-management/	
Spain	Treasury letters	Letras del Tesoro			77	https://www.tesoro.es/en/deuda-publica/los-valores-del-tesoro/letras-del-tesoro	
Sweden	Treasury Bills	Statsskuldväxlar			100	https://www.riksgalden.se/en/our-operations/central-government-borrowing/issuance/latest-auction-result/treasury-bills/	Euro-CP

Source: Author, based on national treasuries' and national central banks' websites

Information on both the primary and secondary markets is scarce. Data on these financial instrument are fragmented, and proper investigation on aggregate amounts as well as on the existence of a secondary market capable of absorbing a significant selling pressure is still warranted. In general, information on Sovereign CP issuance is less straightforwardly available.

2.5. SHORT-TERM EUROPEAN PAPER (STEP)

STEP is an overarching label set up in 2006 by ACI-Financial Market Association (ACI) and by the European Banking Federation, two business associations.³² One of the conditions for the label is that information be provided to the ECB/ESCB who produces and publishes statistics on yields and volumes. The label can be applied to NEU-CP, Euro-CP, domestic CP and Sovereign short-term bills. Since April 2007, STEP is “accepted as a non-regulated market for collateral purposes in Eurosystem credit operations”.³³ The STEP label thus plays a significant role for eligibility to central bank interventions.

The ECB publishes some data on STEP, but the actual composition of the STEP perimeter (in terms of NEU-CP vs. Euro-CP) is unknown, and there is no information on the secondary market. The ECB provides data on outstanding and gross issues on a daily basis, broken down by residual time to maturity, rating category, and issuer type.

As of end-July 2021, STEP paper outstanding amounted to €410bn. The ECB also reports data on yields for new issues on a daily basis.

Just as was the case for NEU-CP, as there is more information on the STEP segment than on the wider CP market, analyses generally focus on this specific perimeter.

3. MAIN ISSUES IDENTIFIED WITH THE SHORT-TERM DEBT SECURITIES MARKET

The stock-take exercise conducted in Section 2 showed that the European short-term funding market is fragmented and opaque. Four main structures coexist: NEU-CP, Euro-CP, domestic CP and sovereign short-term instruments. Several large issuers are active on two or three of these sub-markets (e.g. the French Social Security issues both NEU-CP and Euro-CP³⁴, as pointed out in the previous section, the Irish and Belgian governments issue both T-Bills and Euro-CP), and investors also hold various types of instruments. As a consequence, although separate, the sub-markets are also intricately intertwined.

3.1. SIZE OF THE SHORT-TERM DEBT SECURITIES MARKET AND MMF'S MARKET FOOTPRINT

As of today and given the existing public information available, it is difficult to get a clear picture of the total size of the European short-term debt securities market. In April 2021, the ECB produced an analysis of the CP/CD market based on its internal data where it estimated the overall size to €675bn as of year-end 2020³⁵, yet it excluded the sovereign bills from the scope, and mostly focused on the NEU-CP and STEP segments (where it collects data). A large chunk of the Euro-CP market was thus missing. ICMA (2021) estimated the Euro-CP market

³² See ECB's webpage: [Short-term European paper \(STEP\)](#).

³³ See ECB's Press Release dated 2 April 2007: [First publication of Short-Term European Paper \(STEP\) yield statistics](#).

³⁴ See URSSAF's webpage : [Acoss, benchmark issuer on the money market](#).

³⁵ ECB (2021). [Euro money market study 2020 – Money market trends as observed through MMSR data](#). April 2021, 96p (in particular see Chapter 3: [The short-term debt securities segment](#), pp. 42-58).

to around USD 1,000bn at Q1 2021 (roughly €850bn) with another €250bn for NEU-CP.³⁶ This tends to show that several hundred billion euros worth of CP have not been included in the ECB's analysis.

The lack of proper data on consolidated amounts outstanding on the short-term debt securities market prevented from calculating the exact market footprint of MMFs. This also leaves question marks around the diagnosis of the March 2020 crisis.

Additionally, it is crucial to understand the interplay of the various currencies in the short-term debt securities market and the connection with the structure of the European MMFs' industry. Let's recall that according to regulatory data compiled by the ESRB (2021), the EU market for MMF represented a total amount of around €1,350bn (data as of Dec. 2020)³⁷:

- ↗ MMFs investing predominantly in public debt securities are almost exclusively denominated in USD (which is understandable given the current yields on public debt in Europe) and represent slightly less than €150bn. EU public debt MMFs are in practice an off-shore equivalent of the US Government MMFs.
- ↗ Private debt USD-denominated EU MMFs represent around €300bn and mostly take the form of short-term low volatility net asset value (LVNAV) funds.
- ↗ Private debt GBP-denominated EU MMFs are also mostly LVNAV funds, and represent about €300bn.
- ↗ LVNAVs (especially those denominated in USD) were the ones that experienced the most dramatic wave of redemption during the March episode.³⁸ In aggregate, over the month of March 2020, redemptions on Luxembourgish and Irish USD-LVNAVs exceeded 25% of their asset under management (AuM) as of end-Feb.
- ↗ Private debt EUR denominated EU MMFs amounted to slightly more than €600bn. LVNAVs only represent less than 20%. The large majority of EUR MMFs are longer-maturity VNAVs and are essentially domiciled in France.
- ↗ French short-term EUR VNAVs (i.e. those VNAVs with a maturity profile similar to LVNAVs) virtually did not experience redemptions on aggregate in March 2020 while French Standard EUR VNAVs (i.e. those with a longer maturity than LVNAVs) recorded outflows of 14% of their end-Feb AuM (yet about half this variation corresponded to a long-observed end-quarter redemption cycle specific to this type of funds).³⁹

Last, the ratings of the various programs and issuers by the major credit rating agencies (CRAs) proved determinant in the eligibility to the pandemics asset purchase program by the European System of Central Banks. Actual short-term credit ratings of programs and issuers, as well as CRAs' coverage of and market shares on this segment should be investigated in detail.

Access to more information would therefore allow for a better understanding of the March 2020 crisis on the short-term debt market in Europe.

3.2. SECONDARY MARKET DATA

The secondary market for short-term debt is by and large over-the-counter (OTC) and an assessment of its depth and liquidity is impossible. No data is publicly available on actual trades (volume, settlement price) and the information concerning the demand and supply for short-term instruments (bid and offer quotes, volumes posted) appears extremely difficult to gather.

³⁶ ICMA (2021). [The European Commercial Paper and Certificates of Deposit Market – A white paper by the ICMA Commercial Paper Committee](#). September 2021, 29p.

³⁷ See Chart 4 in European Systemic Risk Board (2021). [Issues note on systemic vulnerabilities of and preliminary policy considerations to reform money market funds \(MMFs\)](#). July 2021.

³⁸ See International Organization of Securities Commissions (2020). [Money Market Funds during the March-April Episode – Thematic Note](#). OR03/2020 – November 2020.

³⁹ See Darpeix, Pierre-Emmanuel and Natacha Mosson (2021). [Detailed analysis of the portfolios of French money market funds during the COVID-19 crisis in early 2020](#). AMF Risk and Trend Mappings, May 2021, 41p.

As a consequence, the bid/ask spreads and the volumes offered or demanded by the various players are broadly unknown to market regulators. These features prevent them from assessing the structural liquidity of the market, and its ability to cope with large sale pressure both in normal times and in stressed conditions. Recall that transactions on CP are generally not reported to securities regulators since the vast majority of CP are not admitted to trading or traded on a trading venue (see Section 1).

Accessing standardized data on the short-term debt securities secondary market would help assessing its liquidity in comparison to that of other markets. The question of the relative liquidity of short-term bonds vs. corporate papers is an issue worth investigating extensively, as well as the one concerning the relative liquidity of sovereign bills vs. Sovereign CP vs. other CP on the secondary market. This last aspect is all the more important given that even the US Treasury market (a market which is much deeper and much more homogenous than the 27 EU sovereign debt markets) is reported to have faced large scale dysfunction during the Covid crisis.⁴⁰

3.3. MARCH 2020 CRISIS AND CENTRAL BANK INTERVENTIONS

In March 2020, against the backdrop of the dramatic evolution of the COVID pandemic and the strict lock-down measures that had to be imposed by governments, the short-term debt securities market froze.

The secondary market is generally considered not very deep, as investors usually hold these short-term securities to maturity. It was therefore difficult for the market to absorb large selling pressure (as stated before, though, not much information is available on the secondary market due to its OTC nature, and we do not know what the actual positions were).

In parallel, issuances on the primary market were halted: the high degree of uncertainty about the near future limited the investors' willingness to purchase CP or CD, even for very short maturities of a few weeks.

By the end-March / early April, central banks in Europe started implementing asset purchase programs targeting the CP/CD market. The ECB indeed increased its private sector purchases and expanded the eligibility of non-financial commercial paper by lowering the residual maturity criteria (from 6 months to 28 days).⁴¹ This intervention, focused on eligible non-financial corporates, proved efficient to progressively restore confidence in the entire CP/CD market and help issuances resume over a few weeks.

Information on central bank interventions on the market for short-term debt is also rather fragmented.

The European System of Central Banks (ESCB) CP purchases under the Pandemic Emergency Purchase Program (PEPP)⁴² are provided by the ECB on a bi-monthly frequency (i.e. every other month).⁴³ As of end-May 2020, the total holdings of CP amounted to €35.5bn (**more than 80% purchased on the primary market**). As of end-July 2021, CP in the ESCB's balance sheet had almost disappeared and represented an outstanding of less than €4bn (see Figure 4).

There is no public information about the composition of the CP purchased (whether they are Euro-CP or NEU-CP or other national CP).

⁴⁰ See Group of 30 (2021). [US Treasury Markets, Steps towards Increased Resilience](#), July 2021, 40p.

See also: Vissing-Jørgensen, Annette (2021). [The Treasury market in Spring 2020 and the response of the Federal Reserve](#), NBER Working Paper #29128.

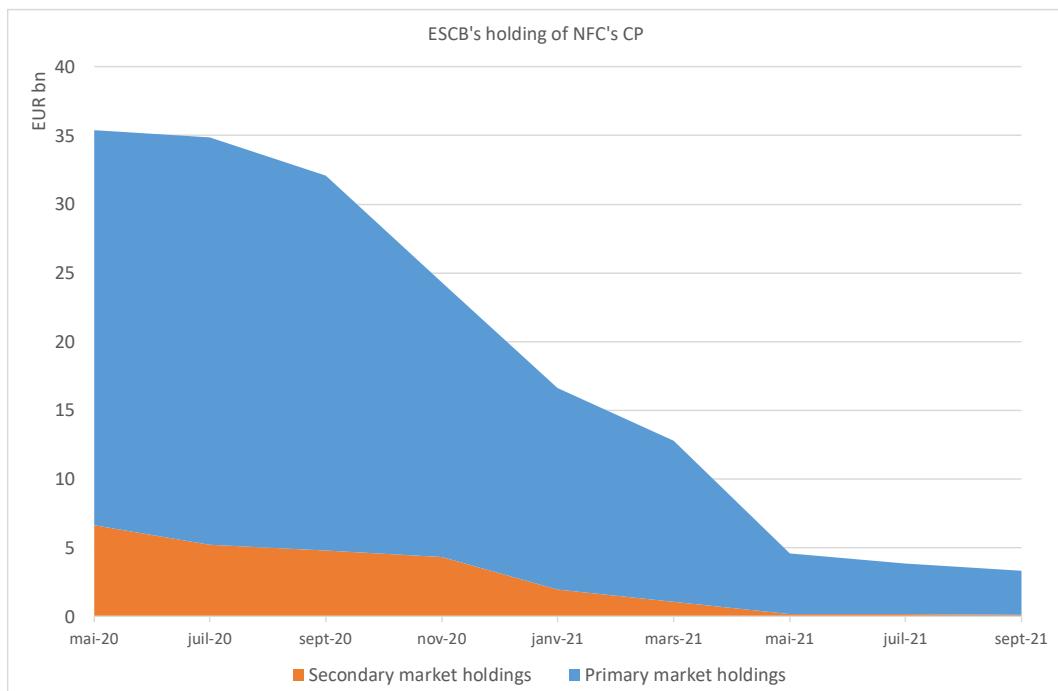
⁴¹ See de Guindos, Luis and Schnabel, Isabel (2020) [The ECB's commercial paper purchases: a targeted response to the economic disturbances caused by COVID-19](#). Blog Post dated 3 April 2020.

⁴² See de Guindos, Luis and Schnabel, Isabel (2020) [The ECB's commercial paper purchases: a targeted response to the economic disturbances caused by COVID-19](#). Blog Post dated 3 April 2020.

⁴³ See ECB's webpage : [Pandemic Emergency Purchase Programme \(PEPP\)](#).

The issue of eligibility to central bank programs remains key to understand the perimeter of their interventions. This would allow supervisors to assess whether MMFs' assets are likely to be bought in case of crisis (either because of direct central bank purchase, or because market players believe that central bank might eventually buy them). Attention should be especially drawn to the fact that ratings issued by agencies other than the big four (S&P, Moody, Fitch and DBRS Morningstar) have so far not been included in the Eurosystem credit assessment framework (ECAF).⁴⁴ It is difficult to find a public explanation of this, especially since these smaller Credit Rating Agencies (CRAs) are also authorized and regulated by the European Securities and Market Authority (ESMA). One reason might be that ECAF applies to all types of securities, and not specifically to the short-term debt segment, on which Eurosystem interventions are not frequent. In any case, including more of these smaller CRAs in ECAF would contribute a lot to the stated objectives of the European CRA Regulation (2013 amendments) to foster competition in this market.⁴⁵

Figure 4: Net amounts outstanding of commercial paper purchased by the European System of Central Banks within PEPP



Source: ECB

The CP purchases under the Bank of England and HM Treasury's Covid Corporate Financing Facility are provided at a weekly frequency (i.e. eight times more frequently than the ESCB) from 1st Apr. 2020.⁴⁶

The BoE's intervention was **exclusively targeting the primary market**, and the maximum amount of CP in the balance sheet was £20.5bn on 20 May, 2020. As of Sept 15th 2021, only £3.6bn were still in the balance sheet (see Figure 5).

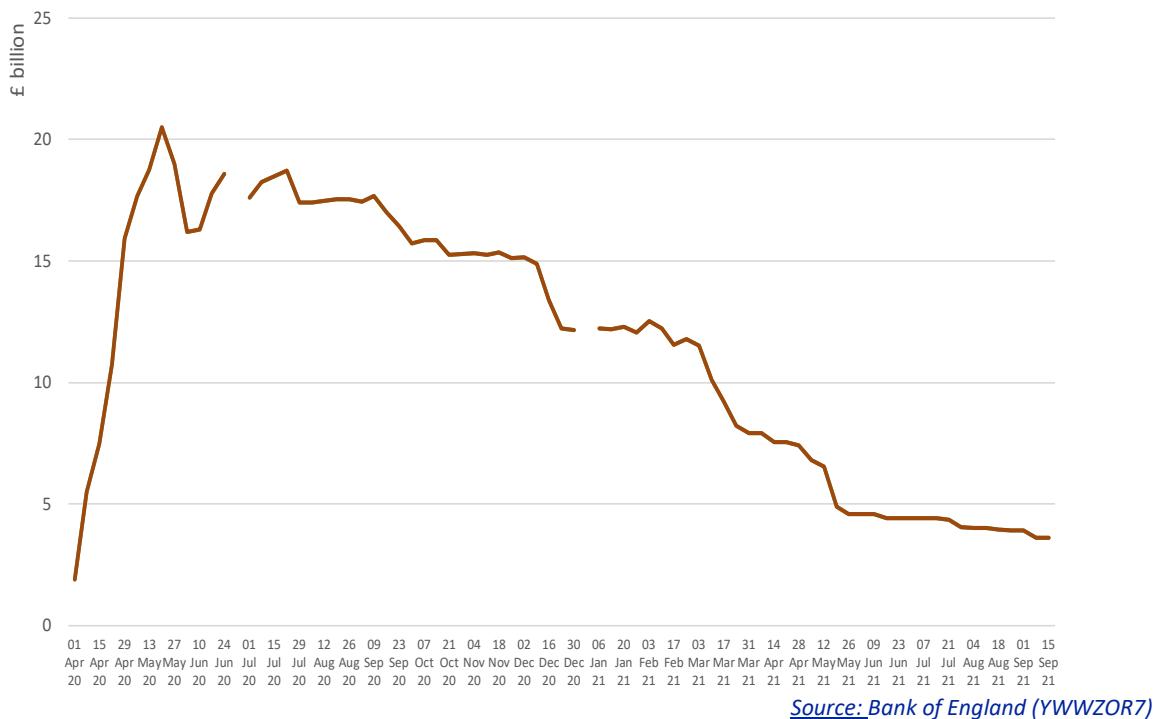
Yet, as is the case with other data from the Bank of England, the series only refers to the vague terminology of "CP". It is therefore unclear whether the program targeted only Euro-CP or all types of commercial paper.

⁴⁴ See ECB's webpage : [Eurosystem credit assessment framework \(ECAF\)](#).

⁴⁵ See [Regulation \(EU\) No 462/2013 of the European Parliament and of the Council of 21 May 2013 amending Regulation \(EC\) No 1060/2009 on credit rating agencies](#).

⁴⁶ See Bank of England Database, Series [YWWZOR7](#).

Figure 5: Net amounts outstanding of commercial paper purchased in the BoE and HM Treasury's Covid Corporate Financing Facility



Central bank purchases of CP in Europe appear to have been very short-lived. We are talking of a totally different type of central bank intervention than the unconventional longer-term bond purchases initiated in 2014 in the aftermath of the EU sovereign debt crisis, which had long-lasting consequences on the central banks' balance sheets.

The interventions were sizeable when compared to the outstanding amount of non-financial corporates' CP (the EUR corporate CP market was assessed around €75bn by the ECB in April 2020⁴⁷ – yet estimates from CSDB indicate €111bn of corporate CP outstanding at that date to which should probably be added a portion of the €81bn of CP issued by non-bank financial institutions), but quite limited relative to the overall amount of short-term debt securities.

The transitory nature of these interventions (on a market that underwent a liquidity crisis, but not a solvency crisis) has to be highlighted: central banks played a critical role of liquidity provision of last resort on the primary market for short-term funding, and enabled the market to resume operation rapidly after the initial freeze.⁴⁸

⁴⁷ de Guindos, Luis and Schnabel, Isabel (2020) [The ECB's commercial paper purchases: a targeted response to the economic disturbances caused by COVID-19](#). Blog Post dated 3 April 2020.

⁴⁸ See e.g. Badgehot, Walter (1873). *Lombard Street – a description of the Money Market*. Henri S. King & co.: London, 359p.

4. A FEW INSIGHTS FROM THE CENTRALIZED SECURITIES DATA BASE (CSDB)

In this section, we exploit extracts from the ECB's Centralized Securities Database provided for by the European Systemic Risk Board (ESRB). This database is probably the most exhaustive source of information on the securities outstanding in Europe. The perimeter encompasses all securities issued by EU residents (whether within or outside of the EU), all securities denominated in EUR, as well as other internationally traded securities likely to be held by EU residents.⁴⁹

For the purpose of this analysis, we focused on the short-term debt instruments, securities gathered in CSDB under the general heading of "Money Market Instruments" (D.7). We obtained extracts at a monthly frequency on 2020. Outstanding amounts were then broken down by nature (4 sub-groups emerged: "Certificates of Deposits"; Euro-Commercial Paper"; "Other Commercial Paper"; and "Other money market instruments"), by type and domicile of the issuer, by currency, and by coupon type.

As can be seen from the previous paragraph, Euro-CP are clearly identified, yet this is not the case for NEU-CP, domestic CP markets and Treasury bills. Those securities are probably spread over the other main types. Section 4.4 provides useful complements to the analysis: a matching of CSDB ISIN-level data with Banque de France data on NEU-CP helped identify the latter in the broader CSDB and shed light on their classification.

In Figure 6, we provide an overview of the structure of the short-term debt securities market according to CSDB, by nature of the security and by issuing country: Euro-zone ("€z"), rest of the EU ("EU\€z"), four non-EU-Western Europe countries, namely Switzerland, the United Kingdom, Norway and Iceland ("UK/NO/CH/IS"). As the Euro-CP is domiciled in Europe, we also added in the graph the Euro-CP issued by all the other countries ("Other international").

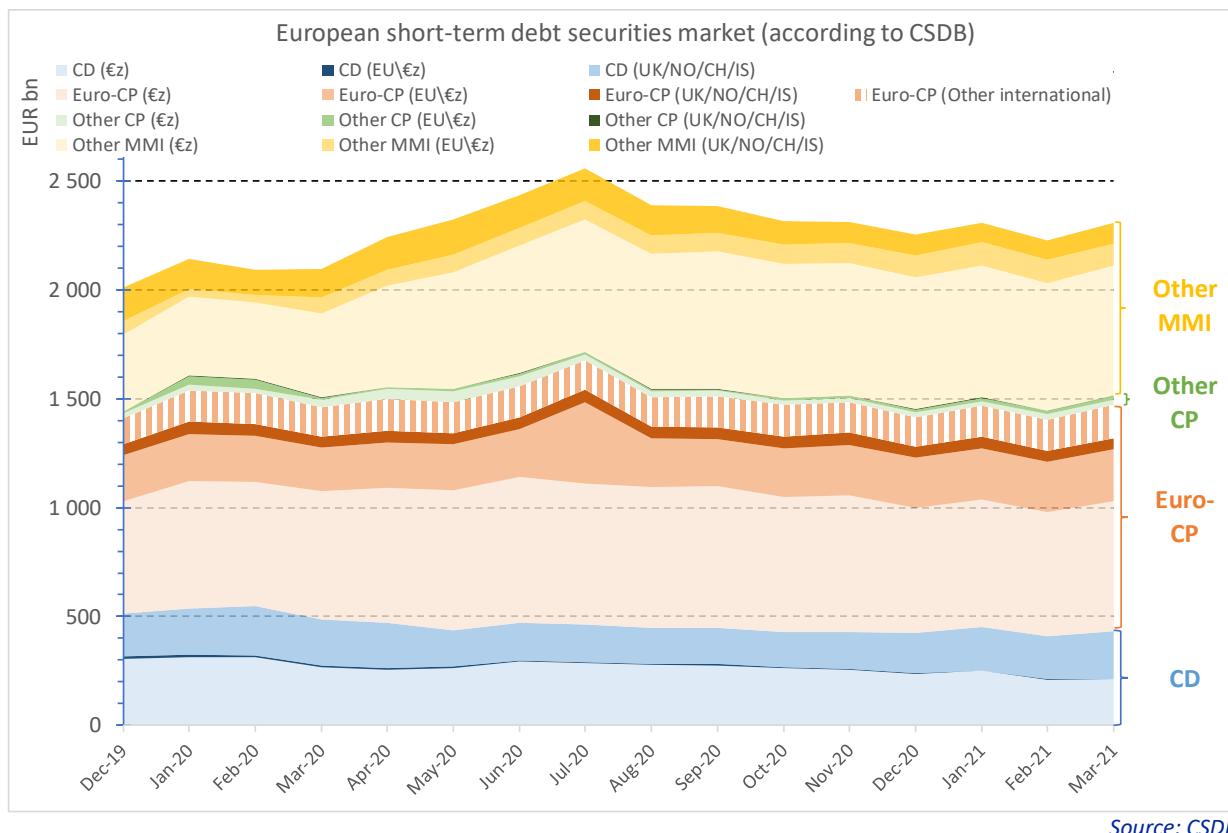
A given color identifies each of the four types of instruments listed above. Outstanding issued by Euro-zone-domiciled entities are in light shades while issues by the other countries are in darker colors. Euro-CP issued by non-European entities are indicated with vertical stripes. Certificates of deposits (CD) are depicted in blue. Euro-CP are in green while other CP are in brown. Other non-identified money market instruments (MMI) are in yellow.

Figure 6 shows that the short-term debt market in Europe is worth more than 2 trillion euros. From the relatively stable plateau observed over 2020-Q1 around 2.1 trillion euros, outstanding have increased significantly in 2020-Q2 and peaked above 2.5 trillion by end-July. They then decreased slightly over the following months to stabilize at around 2.3 trillion euros.

One notes a slight but continuous decline in the CD segment (blue areas, at the bottom of the graph) over time (from €514bn at year end 2019 to €431bn at the end of March 2021). The decrease is particularly sensible between the peak observed at end-Feb 2020 (€546bn) and the trough observed at the end of May 2020 (€425bn).

⁴⁹ For more details on the CSDB, refer to ECB (2010). [The "Centralised Securities Database" in brief](#). February 2010, 7p. The interested reader could also have a look at Cornejo Pérez, Asier & Javier Huerga (2015). [The Centralised Securities Database \(CSDB\) – Standardised micro data for financial stability purposes](#). BIS working paper

Figure 6: European short-term debt market over 2020, according to CSDB



Source: CSDB

The Euro-CP market (brown areas) amounted to €895bn at year-end 2019, and €992bn twelve months later (exceeding one trillion euro at the end of each month between these two dates). The outstanding appears to have been rather stable, despite a peak observed at the end of July, where it exceeded 1.2 trillion (this was due to a doubling in the outstanding of EUR-denominated Euro-CP issued by a non-Eurozone EU central bank – probably due to a rollover anticipated by a few days, with the two rolling securities outstanding at the same time). Euro-CP issued by Eurozone issuers correspond to about €600 billion, non-Eurozone EU-issuers to €200 billion, and other non-EU issuers (including non-European) to another €200 billion.

The “other CP” markets, depicted in green, are very small (about €50 billion), while the “other MMI” segment (yellow shades) is very large, ranging between €500 billion and €800 billion depending on the month.

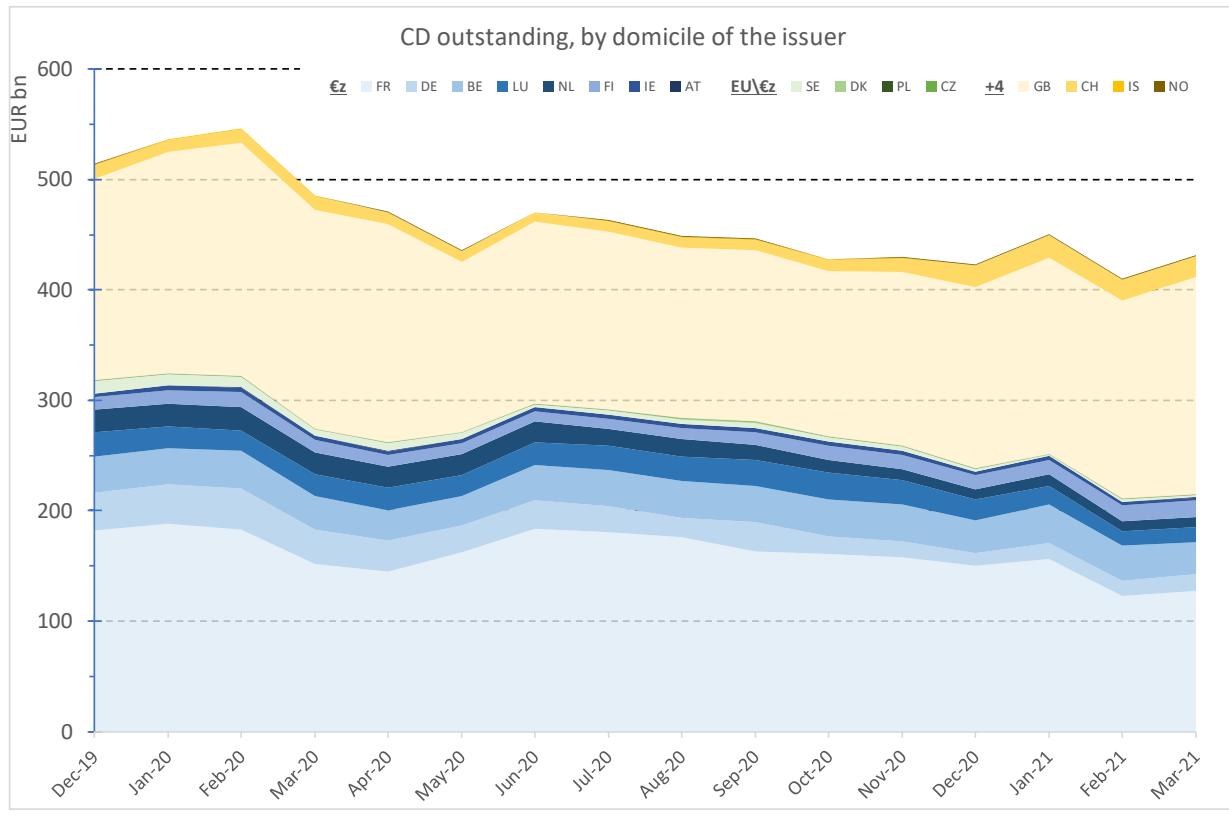
4.1. FOCUS ON THE CD SEGMENT

Overall, outstanding of CD issued by European entities (EU and non EU) represent €423bn as of December 2020, down from €514bn twelve months earlier. At the beginning of the period (end-2019), EU-CD dominated (representing 60% of the total), while the split is more balanced for the more recent data points (50% as of end-March).

Entities based in EU countries that do not belong to the Eurozone had very limited amounts of CD outstanding in 2020 (less than €15bn at most in the beginning of the period, representing less than 5% of the EU total).

More than half “EU CD” had actually been issued by entities domiciled in France (depending on the month, the proportion of French CD in the total of EU CD oscillate between 55% and 63%). German and Belgian issuers next with about 10% each, and then came Luxembourgish and Dutch issuers with between 4% and 8%. The share of Irish, Swedish and Finnish banks amounted to between 1 to 5 % of the EU market. Austrian, Danish and Polish entities had also issued CD, but the outstanding amounts for these countries never exceeded €1bn.

Figure 7 : European CD market over 2020, according to CSDB



Source: CSDB

“Non-EU” CD are almost exclusively issued by UK-domiciled entities (over the considered period, the share of UK-based entities as a total of non-EU CD oscillated between 89% and 95%).

Aggregated together, French and UK based entities represented slightly less than ¾ of the total outstanding of European CD.

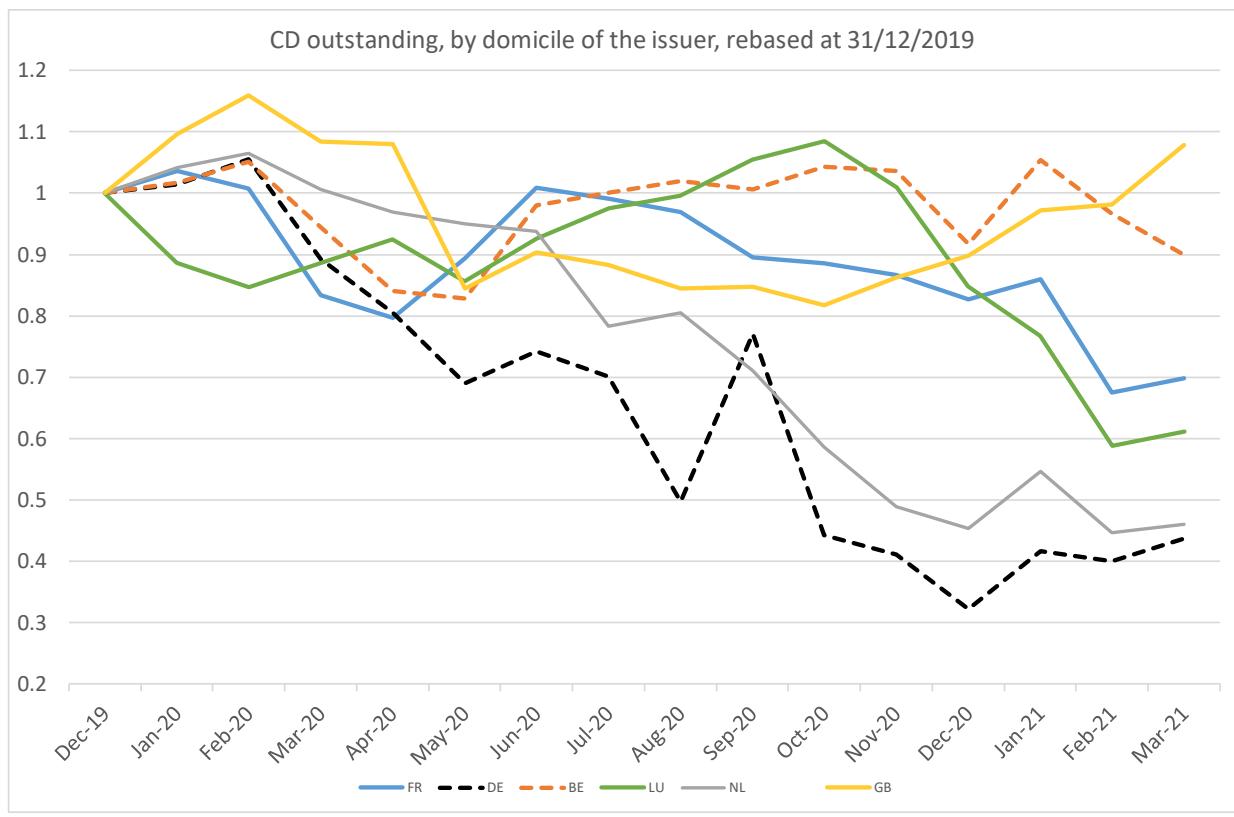
As indicated in Section 1, CD are almost exclusively issued by banks.

The only exceptions to this rule in the data we have for EU countries are a €50mn line issued by “Other financial corporations” in Ireland, and a line for less than €15mn issued by “Non-financial corporations” in Luxembourg.

As for non EU countries, we find CD issued by Swiss NFCs for less than €100mn (outstanding between June and December), by Swiss regional and local government for €31mn in December, and by the Icelandic central bank for around €700mn. In the UK, Other financial corporation issued CD for a maximal amount of €25bn in February.

The downward trend in the outstanding of CD can be better visualized in the graph below. Figure 8 shows the size of the CD issued by entities domiciled in each of the major jurisdictions (FR, UK, DE, BE, LU, and NL), relative to what it was as at 31/12/2019.

Figure 8 : Evolution of the CD outstanding, by domicile



Source: CSDB

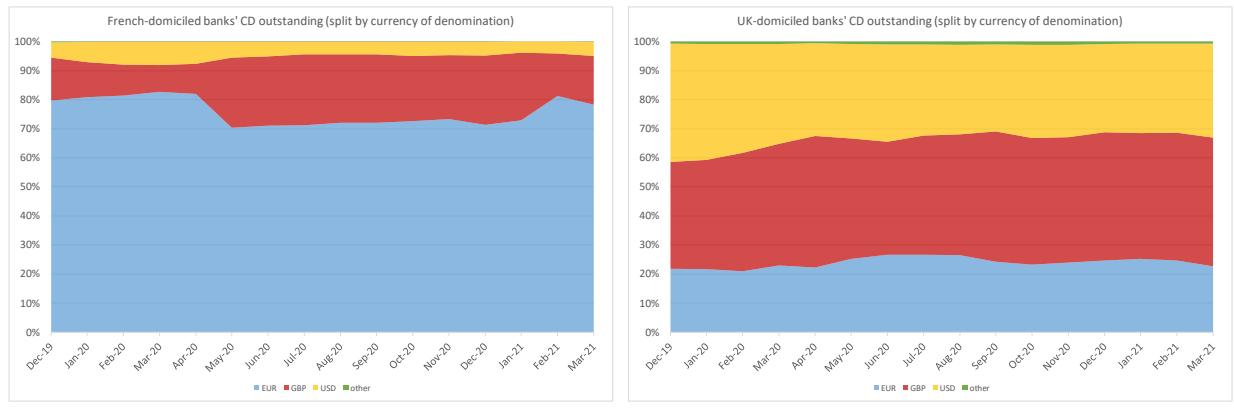
The outstanding of French domiciled banks' CD dropped by about 20% (€31bn) in March 2020, increased again over the second quarter of 2020 to get back to pre-crisis levels, and then steadily declined until Dec.2020 to represent 83% of the pre-crisis level. Then we observed another major drop (for 18 percentage points of the initial outstanding) in Feb. 2021.

As for the UK-domiciled banks, the amount of CD outstanding did drop significantly in 2020, and even more sharply than in the French case (€43bn), yet this drop took place during the month of May (i.e. two months later than France). We then observed a plateau, and the outstanding started increasing again (steadily) in 2020-Q4 and 2021-Q1.

The smaller segment of CD issued by Dutch and German entities represented at the end of 2020 less than half what they amounted twelve months before.

In terms of currencies, let's simply note that French-domiciled banks' CD outstanding was predominantly denominated (more than 70%) in EUR. The currency split for UK-domiciled banks' CD was more balanced (see Figure 9).

Figure 9 : Currency split for CD outstanding (France to the left; UK to the right)



Source: CSDB

4.2. FOCUS ON THE EURO-CP SEGMENT

Over 2020, the CSDB indicated a total outstanding of Euro-CP oscillating around €1tn, broadly speaking the same order of magnitude as ICMA's estimate (which was around \$1tn)⁵⁰, yet substantially higher if we account for the difference in currency (one euro was worth around 1.15 USD in 2020). The analysis of the CSDB also tends to show that previous estimates from the ECB (€675bn) were significantly biased downward due to the partial coverage of STEP and Securities Holdings Statistics by Sector (SHSS) data on Euro-CP.⁵¹ EU-domiciled issuers on the Euro-CP represented roughly 80% of the outstanding (60% for Eurozone countries and 20% for other EU countries).

Issuers were predominantly French (between 16% and 22% of the total Euro-CP market depending on the month), followed by Czech (15% - almost exclusively attributable to Euro-CP issuance by the Czech central bank in Czech Kr.), German (around 15%), Spanish (around 9%) and Dutch (6-7%).

The UK issuers represented around 5% of the total Euro-CP market.

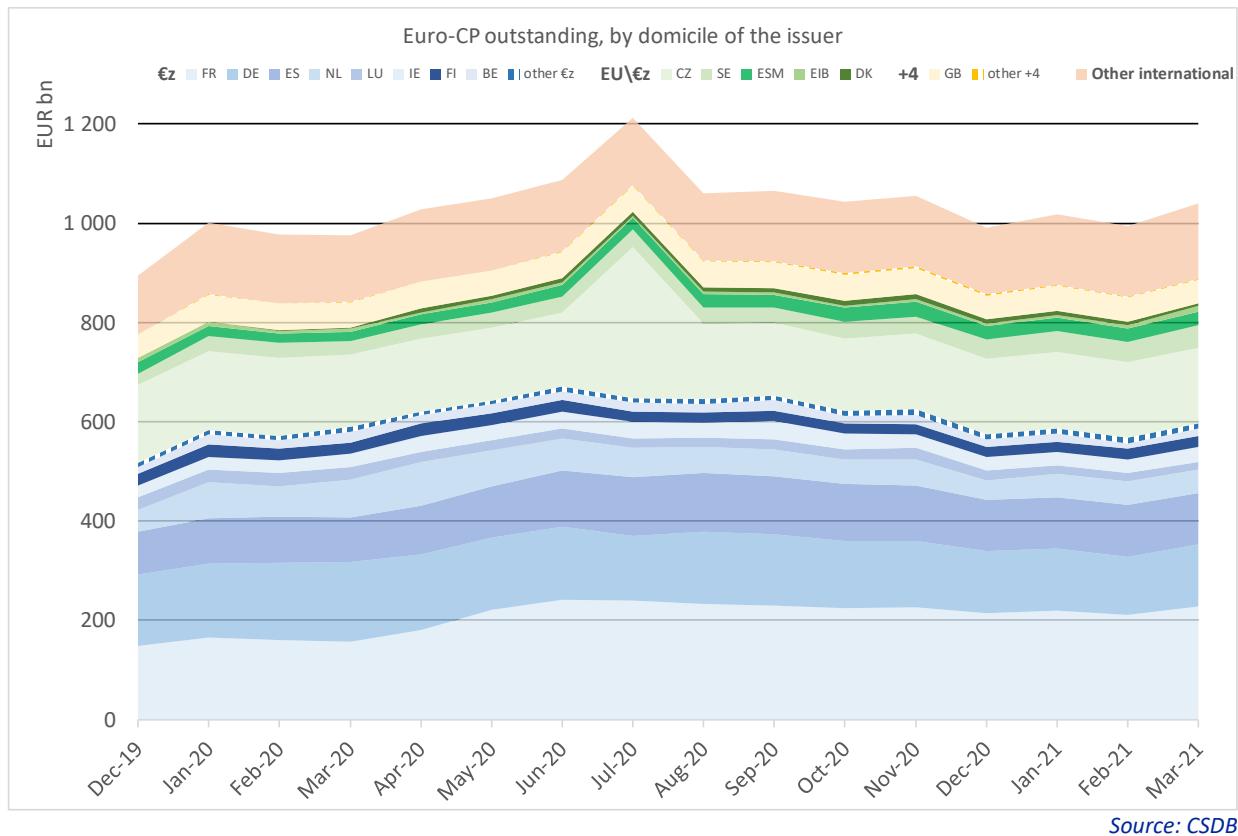
Non-European issuers of Euro-CP were essentially domiciled in Singapore (around 7% of the total). US issuers represented only around 1% of the total.

The peak in Euro-CP as at end-July actually appears to stem from a slight overlap of two rolling-over securities simultaneously outstanding for a few days.

⁵⁰ ICMA (2021). [The European Commercial Paper and Certificates of Deposit Market – A white paper by the ICMA Commercial Paper Committee](#). September 2021, 29p.

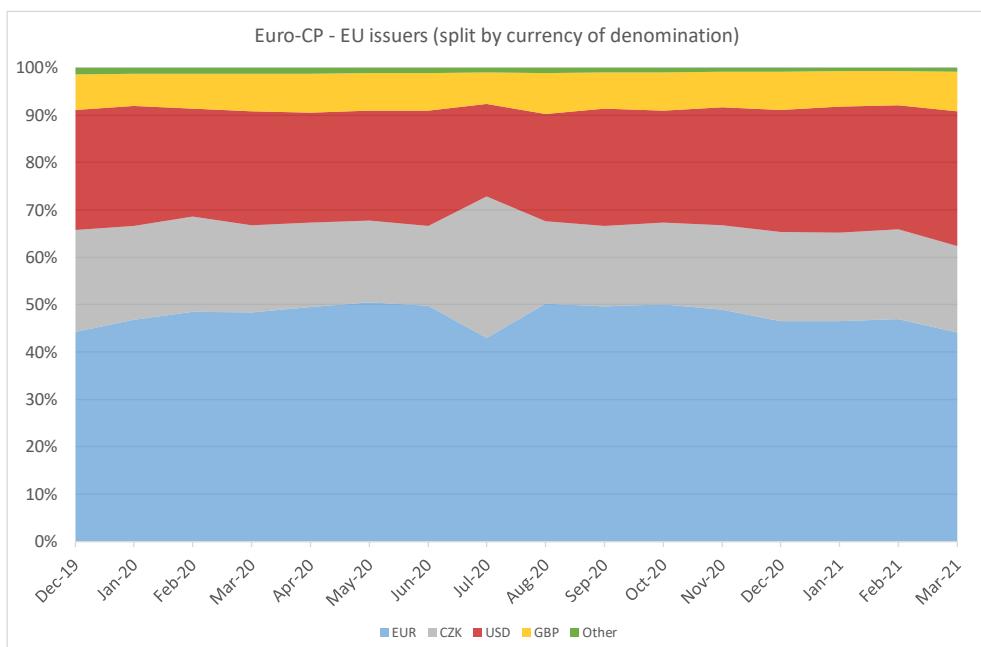
⁵¹ ECB (2021). [Euro money market study 2020 – Money market trends as observed through MMSR data](#). April 2021, 96p (in particular see Chapter 3: The short-term debt securities segment, pp. 42-58).

Figure 10 : Euro-CP market over 2020, according to CSDB



In terms of currencies, we decompose Euro-CP between EU issuers and non-EU issuers. For EU issuers, EUR denominated Euro-CP represent a little less than 50% of the total (between 46 and 49% depending on the month). USD-denominated Euro-CP corresponds to roughly a quarter of the outstanding, while the CZK (linked with the large issuance of Euro-CP by the Czech central bank) arrives third with slightly less than 20%. The share of the GBP lays between 6% and 8%.

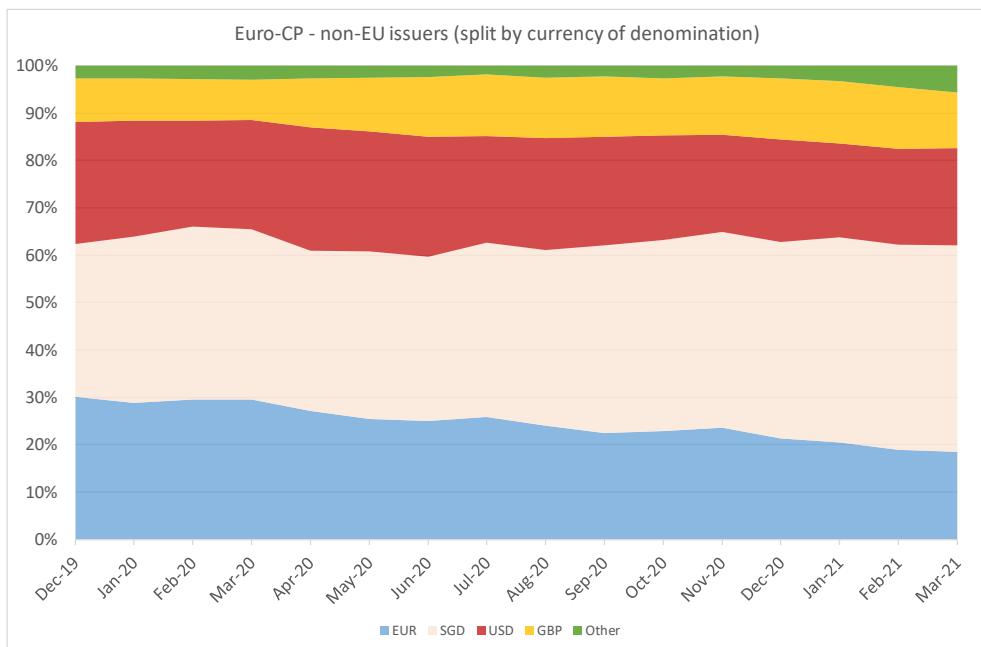
Figure 11 : Currency split for the EU Euro-CP market



Source: CSDB

When we now turn to the segment of non-EU issuers of Euro-CP, the two most represented currencies are the Singaporean dollar and the EUR (with an inversion of the ranking over the period). Together, these two currencies represent 65% of the total.⁵² USD and GBP make the most of the rest.

Figure 12 : Currency split for the non-EU Euro-CP market



Source: CSDB

⁵² Euro-CP labelled in SGD are almost exclusively issued by the Central Bank of Singapore.

4.3. FOCUS ON THE SOVEREIGN DEBT SEGMENT

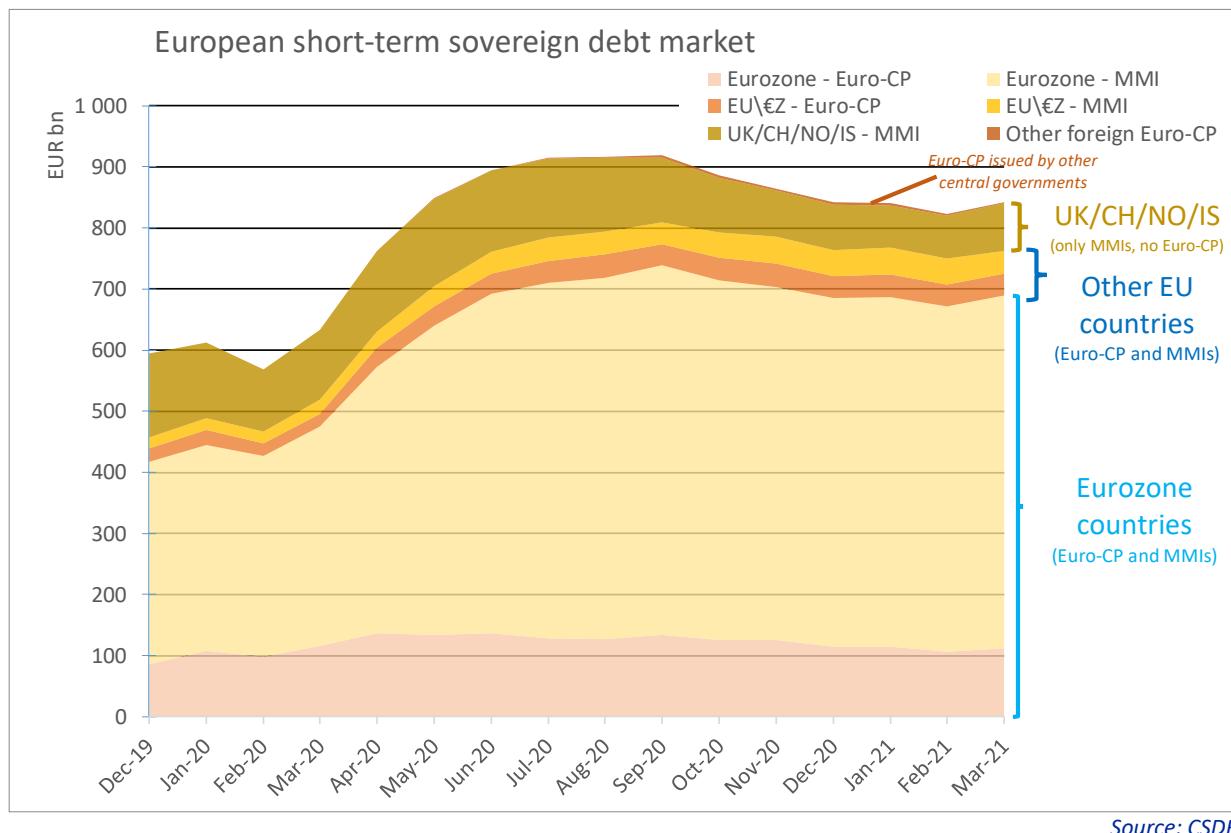
In this section, we filter the data to consider only securities issued by central governments (EU, as well as the four other western European countries) across all types of instruments.

We first segment the data according to the type of instrument. We find that, in the CSDB, the securities issued by central governments are either labelled as “Euro-CP” or as “other MMIs”. Put differently, the CSDB reports no sovereign issuances of CD (which is expected) and no sovereign issuances of other national CP (less expected).

We add a further split according regional and political characteristics (Eurozone countries; other EU countries; other Western Europe countries (UK/CH/NO/IS) and other foreign countries issuing on the Euro-CP market).

Figure 13 shows that the vast majority of the European short-term sovereign debt outstanding lays in the “other MMI” category (i.e. probably Treasury bills, as central government do not issue NEU-CP), but we can also see that EU as well as non-European sovereign entities do issue a significant amount of Euro-CP.

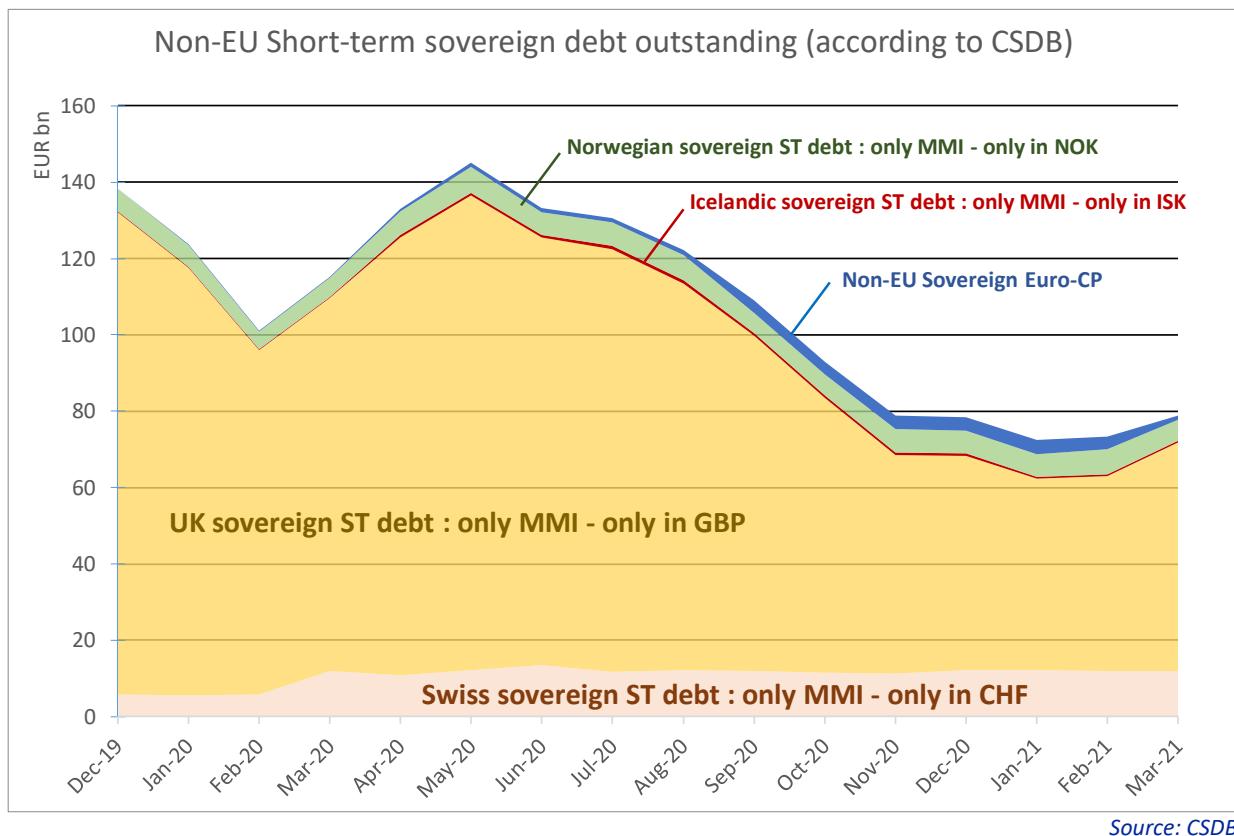
Figure 13 : European short-term sovereign debt (central governments)



Source: CSDB

Interestingly, we find that central governments of the group of four “non-EU-European countries” only issued other MMIs (and no Euro-CP). This is particularly surprising for the UK government, given that, as previously seen, the market for Euro-CP is based in London. Additionally, note that the MMIs they issued were only denominated in their own national currency (see Figure 14).

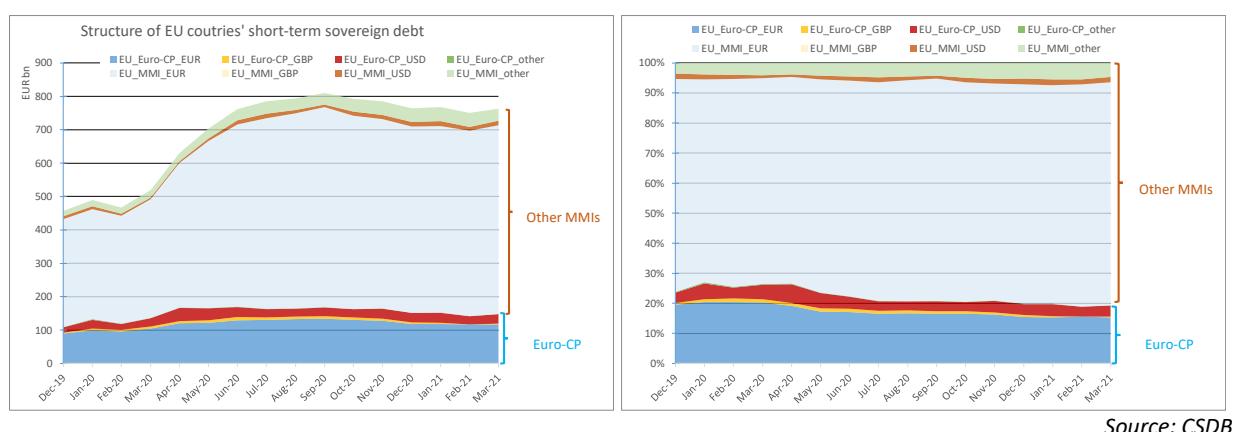
Figure 14 : Non-EU sovereign issuers



We now focus on the segment of EU sovereign debt (thus leaving aside the sovereign short-term debt securities issued by the UK, Norway, Switzerland and Iceland, as well as the Euro-CP issued by non EU countries).

Figure 15 highlights that the vast majority (around 90%) of the short-term debt securities issued by EU countries (whether or not they belong to the Eurozone) is labelled in EUR. Short-term sovereign debt denominated in USD represents around 5% and mostly takes the form of Euro-CP.

Figure 15 : EU short-term sovereign debt (split by currency and security type)



Let's now have a closer look at the country-level outstanding of short-term sovereign debt securities in the EU. In Figure 16, we do not distinguish between Euro-CP and other types of MMIs, while Figure 17 plots separately the "Other MMIs" (to the left) and the Euro-CP (to the right).

Figure 16 : EU short-term sovereign debt outstanding

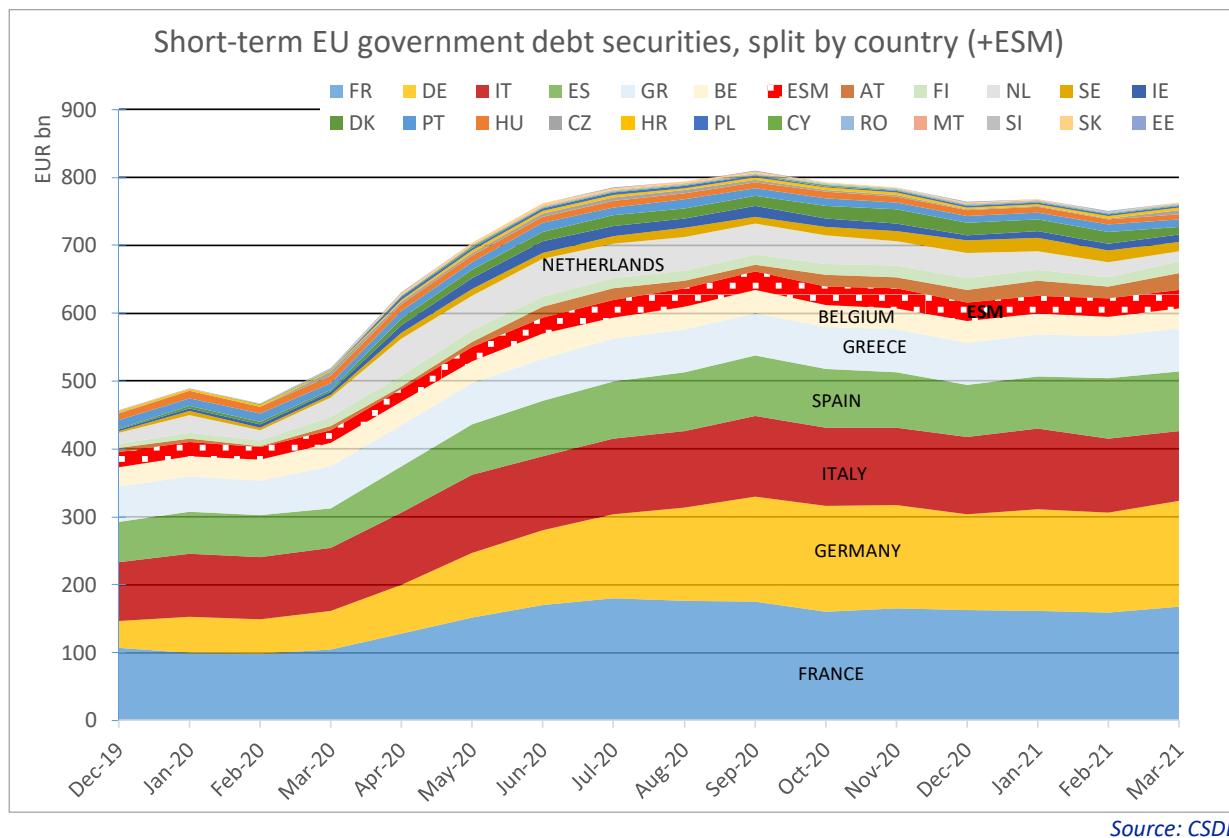
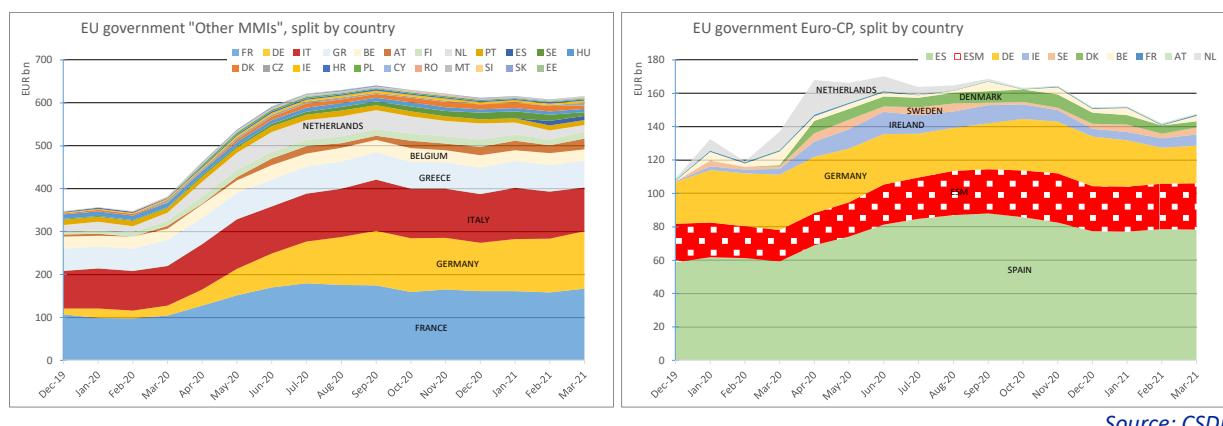


Figure 17 : EU short-term sovereign debt outstanding: split by security type



Although the French government issued some Euro-CP over the period, the amounts are marginal when reported to other MMIs. On the other hand, German sovereign Euro-CP programs are fairly sizable, and even larger than other German MMIs at the beginning of the period. Spanish short-term public debt seems to have taken exclusively the form of Euro-CP over the course of 2020 (other MMIs are found in the CSDB from Feb 2021 on).⁵³ Conversely, the Greek, Italian and Portuguese government appear to be totally absent from the Euro-CP market.

As was pointed out in section 2.4, we see that the strategy of sovereign states about the use of CP in parallel to their Treasury bills is extremely diverse. Overall, CSDB confirms the preliminary findings based on the browsing of Treasuries' websites. Indeed we had found indications that Austria, Belgium, Denmark, Ireland, the Netherlands and Sweden were issuing CP. On the other hand, we had not found indications of sovereign issuances of CP by France and Germany, while there seem to be. Conversely, Spain (as well as the European Stability Mechanism, ESM) were only present on the Euro-CP market, and did not issue other types of securities in 2020.

Table 2: Summary table of Sovereign issuance of Euro-CP in 2020

Sovereign EU States which did not issue E-CP
CY - CZ - EE - FI - GR - HR - HU - IT - MT - PL - PT - RO - SI - SK
Sovereign EU State which only issued E-CP
ES + European Stability Mechanism
Sovereign EU States which issued E-CP and other MMI
AT - BE - DE - DK - FR - IE - NL - SE

Source: CSDB

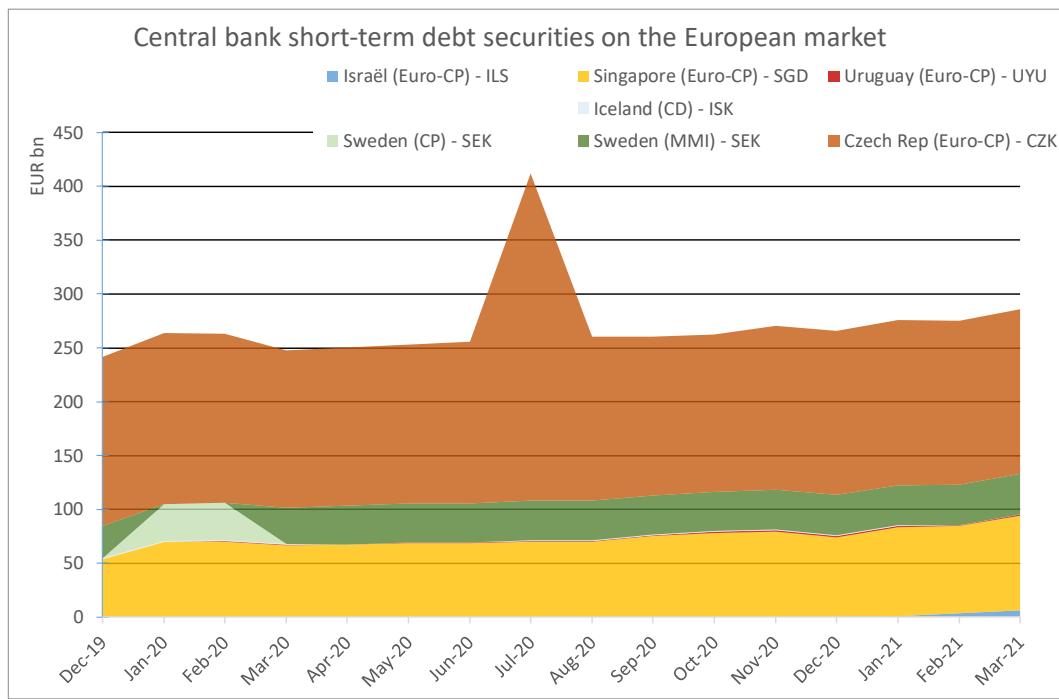
Eventually, let's emphasize that there are other types of public issuers which might be worth considering.

Central banks

Central banks did issue short-term debt securities on the European market (see Figure 18), exclusively in their own national currencies, for an aggregated amount exceeding €250bn. The largest outstanding corresponded to Euro-CP issued by the Czech central bank (as seen previously, with a spike likely corresponding to an overlapping rollover) for around €150bn. Then came the central bank of Singapore (again on the Euro-CP market) and the central bank of Sweden (alternating CP and other MMIs). We also saw more marginal issuances of CD by the central bank of Iceland, and of Euro-CP by the central banks of Israel and Uruguay.

⁵³ Note that there might be a misclassification issue in the CSDB: the amounts declared as "Euro-CP" tend to match the outstanding of *Letras del Tesoro* (Spanish T-bills) recorded on the Spanish Treasury's website (see Section 2.4).

Figure 18 : Short-term debt issued by central Banks

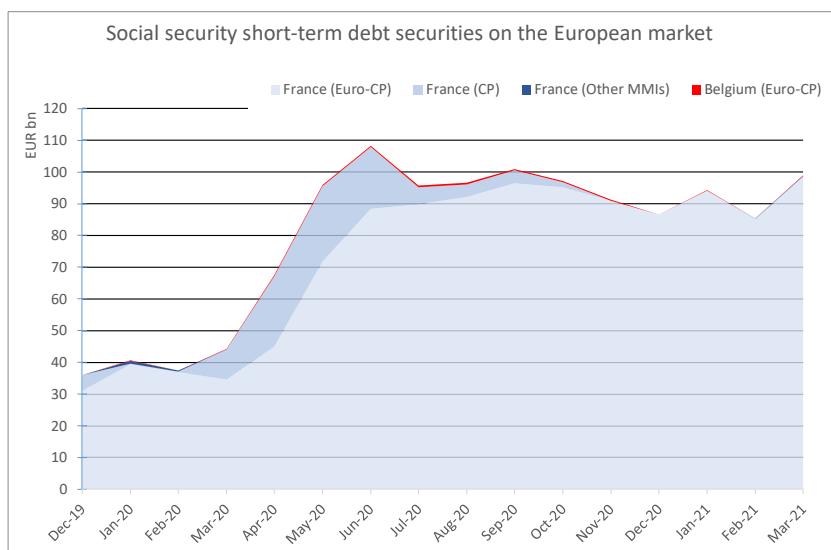


Source: CSDB

Social Security entities

In France, the Social Security does issue short-term debt securities (predominantly in the form of Euro-CP). At the peak of the coronavirus crisis, outstanding amounts exceeded €100bn (see Figure 19). The Belgian Social Security is the only other example in Europe of such bodies issuing short-term debt securities (yet the amounts are clearly not comparable).

Figure 19 : Short-term debt issued by Social Security entities

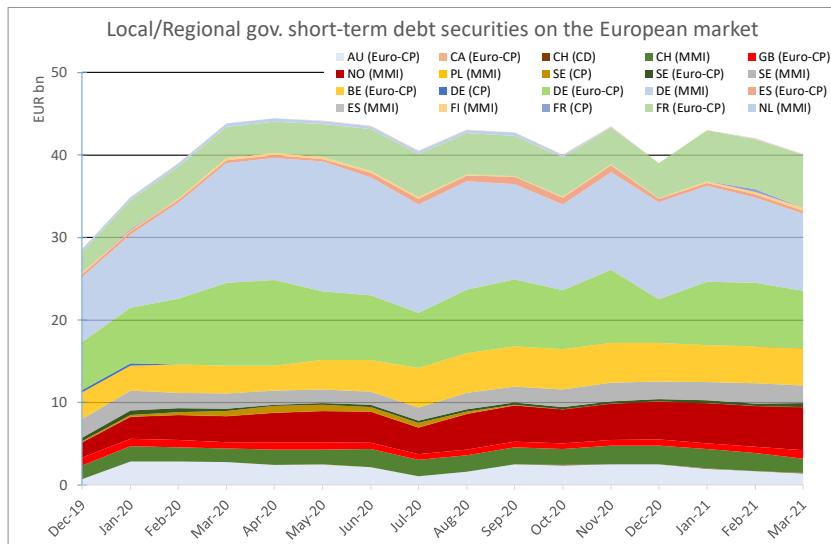


Source: CSDB

Local and regional governments

The amount outstanding of local/regional governments' short-term debt securities on the European market ranges between €40 and 45 billion euros. These securities can be of the four main types identified in the CSDB (Euro-CP / other CP / CD / Other MMI). The largest issuers are German local/regional governments, followed by French, Belgian and Norwegian ones.

Figure 20 : Short-term debt issued by Local and Regional governments



Source: CSDB

Supra-national entities: another €20bn taken together

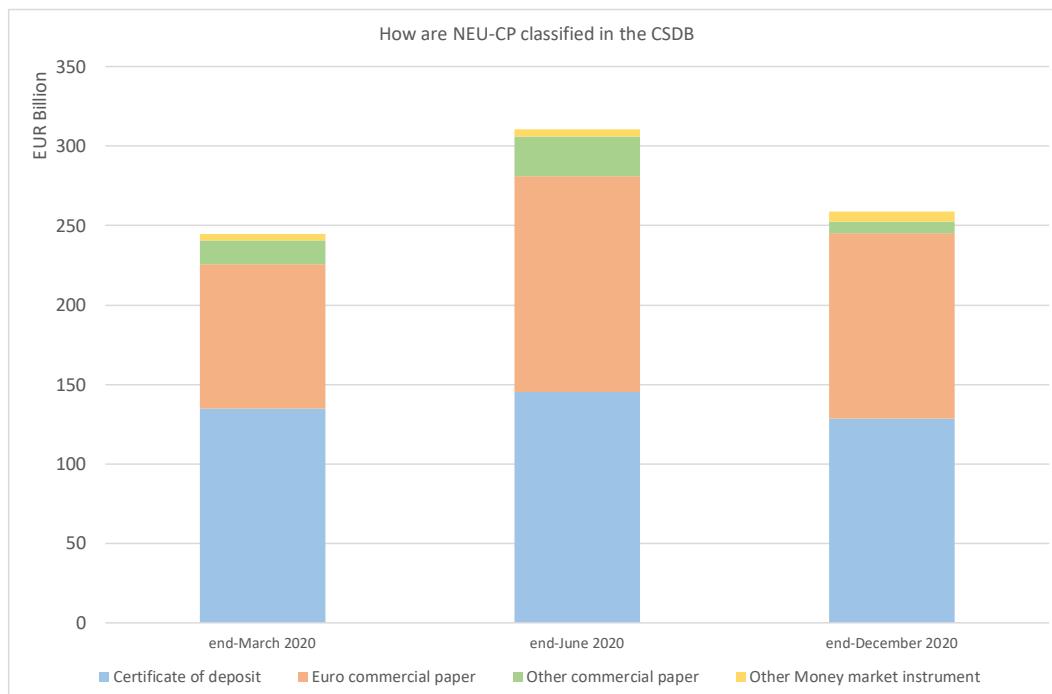
The largest such issuers are the European Investment Bank (EIB, €8bn, mostly Euro-CP), the European Bank for Reconstruction and Development (EBRD, Euro-CP for €5bn) and the World Bank (IDA, Euro-CP for €5bn).

4.4. ATTEMPTS AT IDENTIFYING NEU-CP WITHIN THE CSDB

As was mentioned in the beginning of Section 0, NEU-CP are not clearly identified within the CSDB. It was therefore to be expected that they might be spread over the two residual categories ("other CP" or "Other MMI"). The Banque de France provided us with the list of ISIN corresponding to the NEU-CP that were still outstanding for three computation dates: March 2020, June 2020 and December 2020. It so happens that actually, NEU-CP are present in all four CSDB categories, and even more so in the two main categories of "Euro-CP" and "Certificates of Deposit". This again points to the lack of harmonized data and clear identification of the short-term securities, even within the CSDB.

For the three dates, merging the list of NEU-CP ISINs with the CSDB allows us to qualify slightly the orders of magnitude presented earlier (see Figure 21). As of December 2020, out of the €423bn of CD referred to in section 4.1, €129bn were actually NEU-CP. Similarly, €117bn worth of NEU-CP outstanding in Dec. 2020 were previously classified as Euro-CP. A more proper estimate for the market of Euro-CP would therefore be around €850bn as of 31/12/2020.

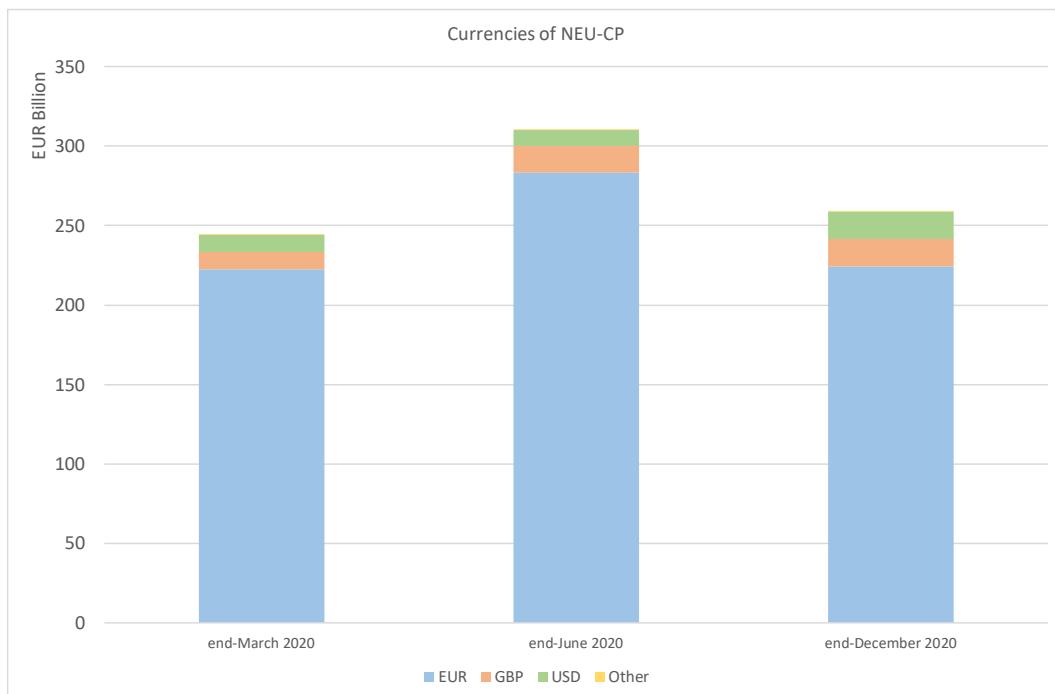
Figure 21 : How are NEU-CP classified in the CSDB



Source: CSDB, Banque de France

In terms of currencies, the NEU-CP market is clearly dominated by EUR (which was accounting for 91% of the outstanding in March and June, and to 87% in December 2020 – see Figure 22). With an outstanding of €10bn each in March 2020, and around €17bn each at year-end 2020, GBP and USD were making up for the rest (outstanding of NEU-CP in other currencies were never larger than €200 million each, and did not exceed €350 million cumulated).

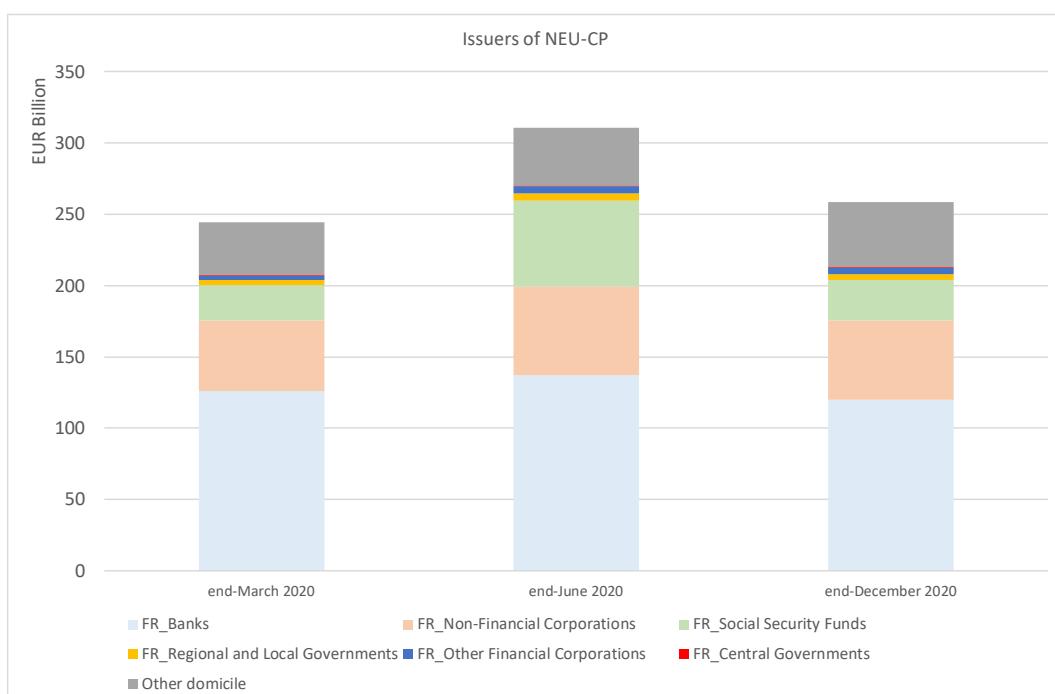
Figure 22 : Currencies of NEU-CP



Source: CSDB, Banque de France

Issuers on the NEU-CP market are predominantly domiciled in France (around 85% of the total for the various dates considered – see Figure 23).

Figure 23 : Issuers of NEU-CP



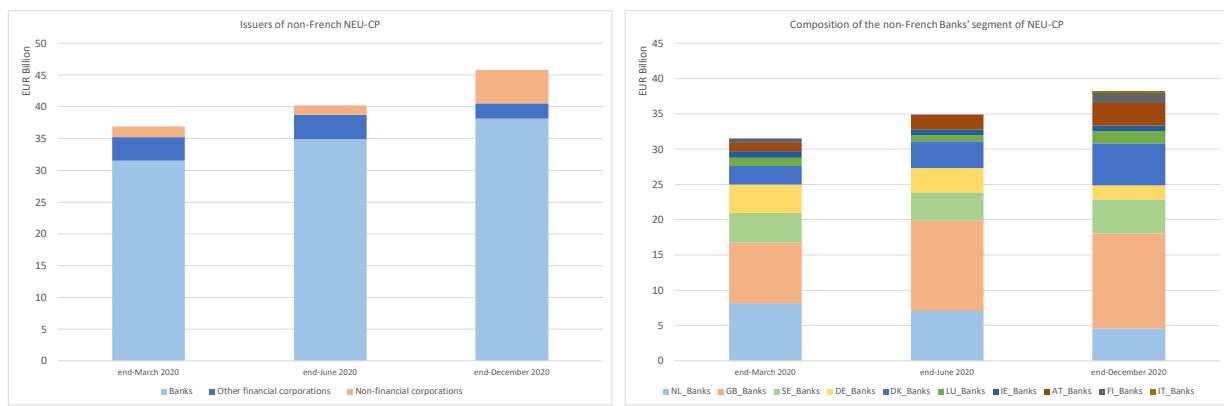
Source: CSDB, Banque de France

French banks alone accounted for 51% of the total by end-March 2020, 44% by end June 2020, and 46% at year-end 2020. The proportion of French non-financial corporates remained stable at around 20% of the total NEU-CP market.

French Social Security NEU-CP more than doubled in absolute value between end-March and end-June, but were then halved again by the end of the year.

The graphs of Figure 24 provide more detail as to the composition of the “other domicile” NEU-CP aggregate. One observes that non-French NEU-CP are predominantly issued by banks (around 85%). Non-French non-financial corporates represented little less 5% in H1-2020, but reached 11% at year-end. Non-French bank issuers were essentially domiciled in the UK, in the Netherlands, Sweden, Germany and Denmark.

Figure 24 : Non-French issuers of NEU-CP



Source: CSDB, Banque de France

4.5. A FEW MORE INSIGHTS USING SHSS

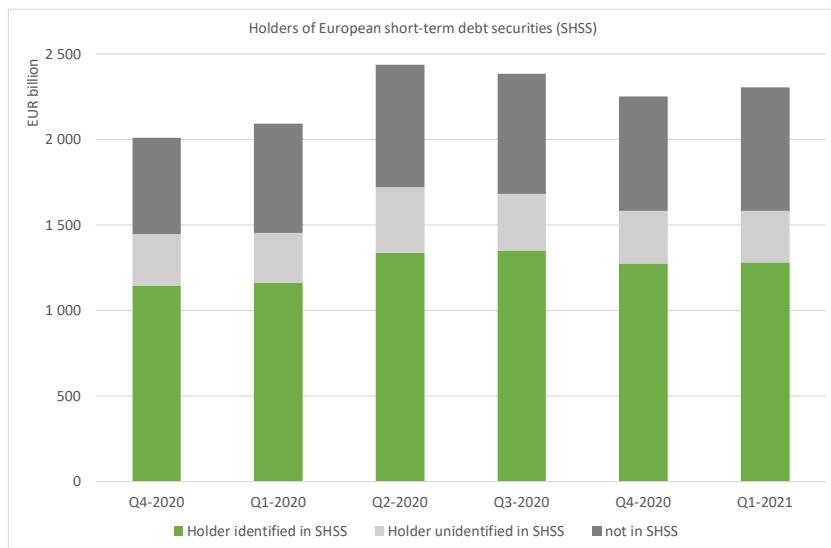
Eventually, we provide some insights about holders of European short-term debt securities, thanks to a merge between the CSDB and the Securities Holding Statistics by Sector (SHSS), a database collected and maintained by the European System of Central Banks since early 2014 (with data series starting as of end-year 2013).

First, let's emphasize some features of this additional dataset as well as its perimeter restrictions: SHSS collects holders' information at the security level on a quarterly basis. Holders are aggregated at the institutional sector level. SHSS covers “holdings of securities by investors resident in the euro area”, as well as “non-resident investors’ holdings of euro area securities that are deposited with a euro area custodian”. Last, “most non-euro area EU countries (namely Bulgaria, the Czech Republic, Denmark, Hungary, Poland and Romania) also collect SHS Sector data”⁵⁴. It should be emphasized here that the UK is not included in the perimeter.

When combining SHSS with our previous CSDB extract, we observe that holders of the assets identified as being European short-term debt securities all along section 0 (i.e. short-term debt securities issued by EU countries and supra national entities, as well as securities issued by the UK, Switzerland, Norway and Iceland to which we added Euro-CP issued by any other country) are only very partially identified (around 55% of the outstanding of such assets could be associated with a holder in the SHSS database, over the period – cf. Figure 25). This can be due either to the fact that some holders fall out of the scope of SHSS (e.g. foreign-owned securities) or because the securities themselves are not recorded in SHSS.

⁵⁴ For more details on SHSS, see ECB (2015). [Who holds what? New information on securities holdings](#). ECB Economic Bulletin, 2015(2).

Figure 25 : Identified holders of European short-term debt securities



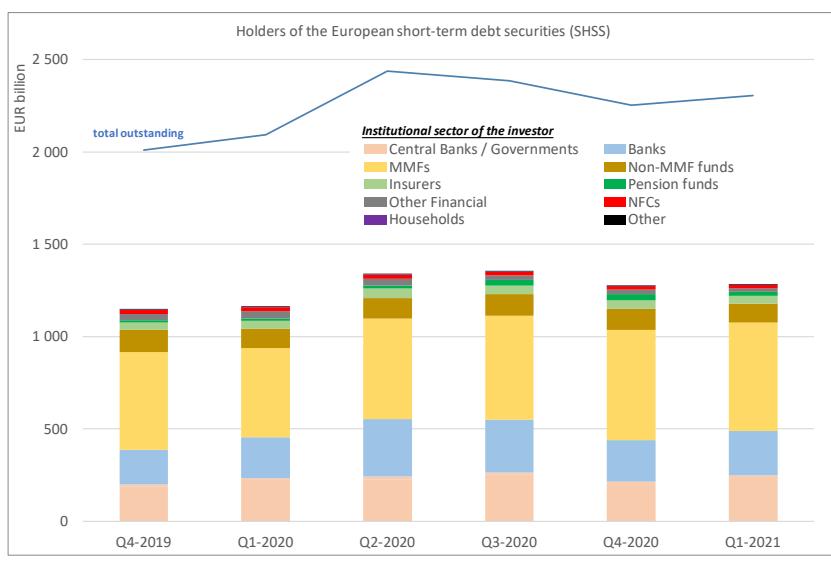
Source: SHSS, CSDB

Note: Among the institutional sectors of SHSS, there is an “unidentified” category, which we pictured in light grey in the above graph. The dark grey should correspond to securities which are not even present in the SHSS.

In the following graphs, we decompose the known holders by institutional sector. For reference, we also indicate the total amount of securities outstanding at each date (blue straight line).

Looking at the full market for short-term debt securities, the largest known investor sector is clearly MMF. They represent around 45% of the total of known investors (a quarter of the total CSDB outstanding – see Figure 26).

Figure 26 : Institutional sector of the holders of European short-term debt securities

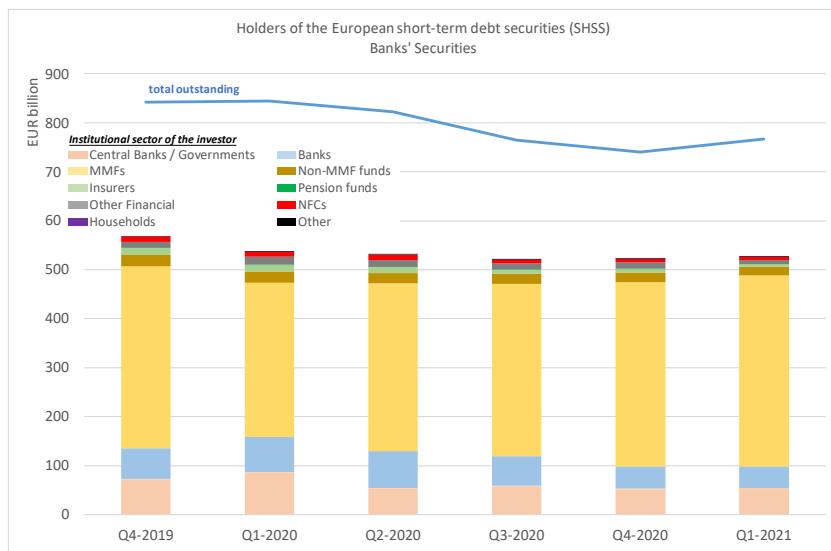


Source: SHSS, CSDB

Interestingly enough, we note that the total holdings of short-term debt securities by MMF amounted to slightly less than EUR 600 billion as at end 2020, while the European MMF sector amounted to more than EUR 1 350 billion at the same date (see [ESRB, 2021](#)). The holdings of a significant amount of European MMF thus seem not to be recorded in SHSS. A comparison with the quarterly MMF portfolio data collected under MMFR since Q1-2020 could help understand the discrepancy.

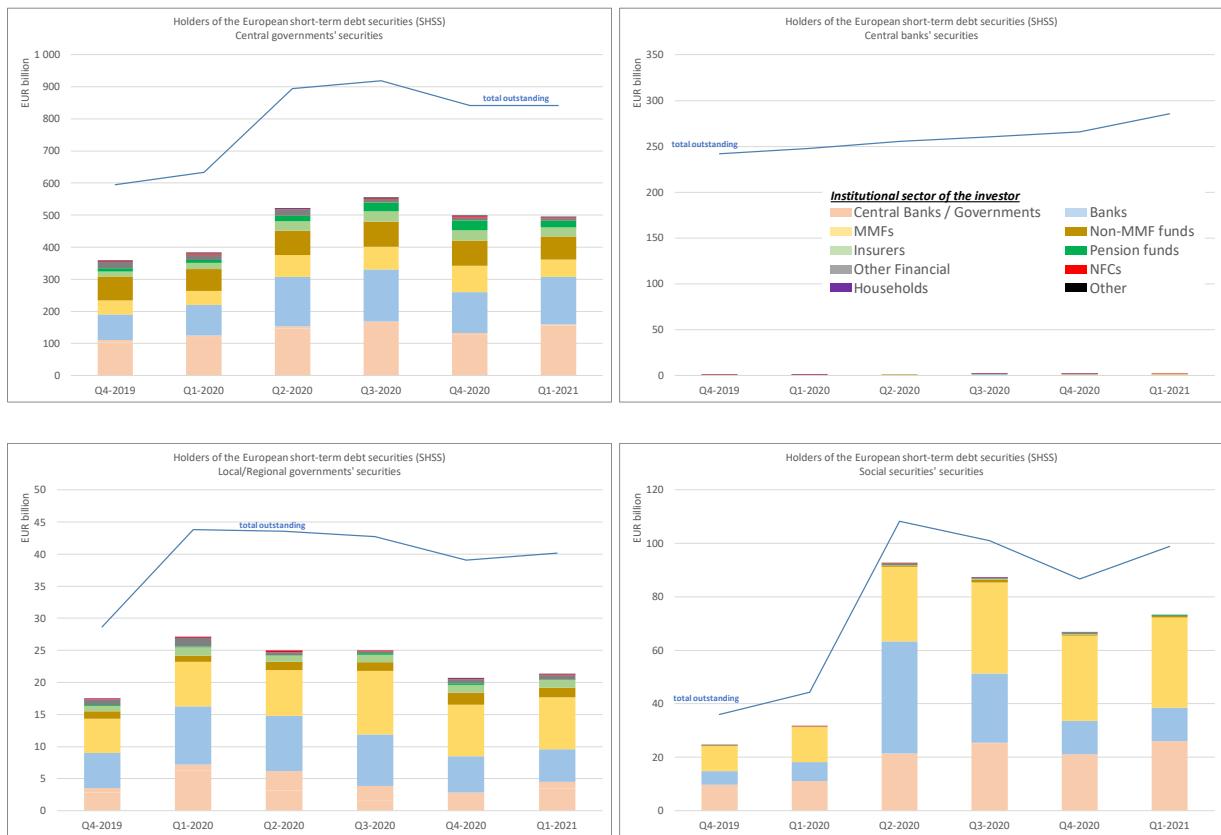
In Figure 27 and Figure 28 we decompose the market for European short-term debt securities according to the type of issuer. We keep the same color code for the institutional sectors of the investors.

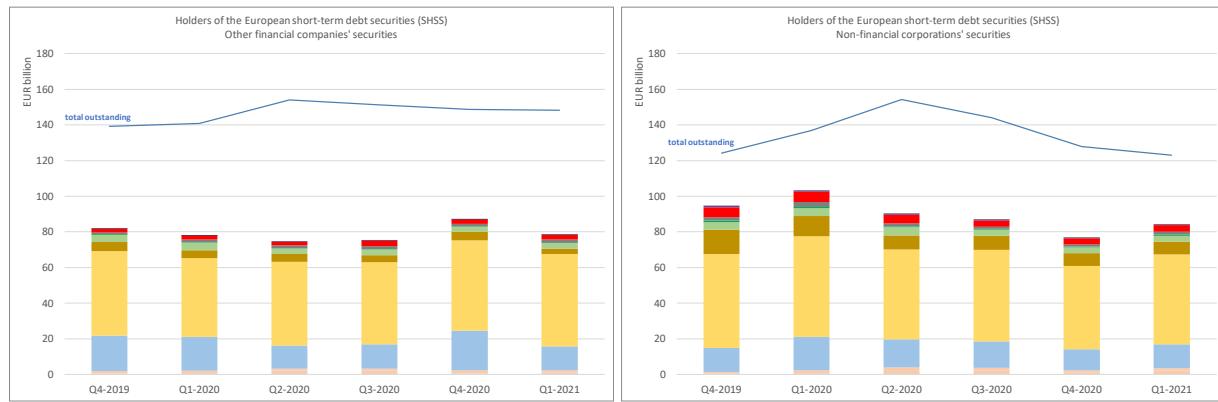
Figure 27 : Institutional sector of the holders of European short-term debt securities issued by banks



Source: SHSS, CSDB

Figure 28 : Institutional sector of the holders of European short-term debt securities, by issuing sector





Source: SHSS, CSDB

Several features stand out from the above graphs:

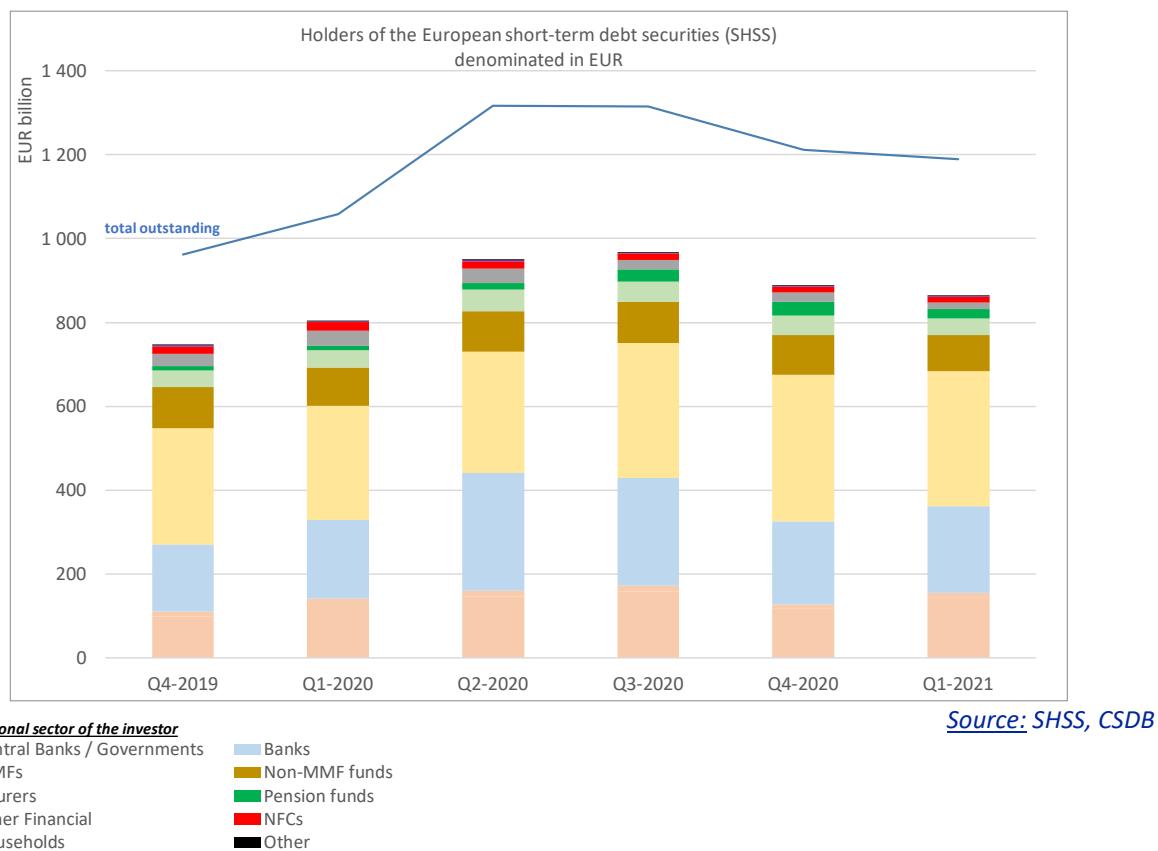
- 1) MMFs appear to be significant investors to most segments. They are particularly present on bank-issued short-term securities (around 45% of the total outstanding). Their share increased to 51% at the end of the period under review as the total outstanding tended to decrease. They maintained a stable amount of funding to NFCs over time (around €50bn, with a peak at €56bn at end-March 2020). MMFs also accompanied the increase in outstanding short-term debt issued by central governments, local/regional governments and social security bodies.
- 2) There is little information about the holders of the short-term securities issued by central banks (from section 4.3, we know that this debt is essentially issued by the Czech, Singaporean and Swedish central banks).
- 3) Central banks / governments' holdings of non-financial corporations' short-term securities are almost non visible. They amounted to less than €1.5bn as of end-year 2019, and peaked at less than €4bn as of end-June 2020. These numbers clearly do not match the public figures on central bank interventions mentioned in section 3.3 (recall that by end-June 2020, the European System of Central Banks reported holdings of NFCs' CP around €35 billion). This, as well as the previous point confirms that holdings of the Eurosystem are indeed actually not reported in SHSS data.⁵⁵

Keeping the color code unchanged, we can also look at the split by currencies: unsurprisingly, more is known about the holders of EUR-denominated securities (yet between a fifth and a quarter of investors are unknown).

At the end of Q4 2020, SHSS recorded €348bn of investments in EUR-denominated short-term securities from MMFs (Figure 29) while the EUR-denominated MMFs accounted for around €620bn.

⁵⁵ This important coverage limitation is clearly stated on the ECB webpage : [Extended publication of Securities Holdings Statistics](#)

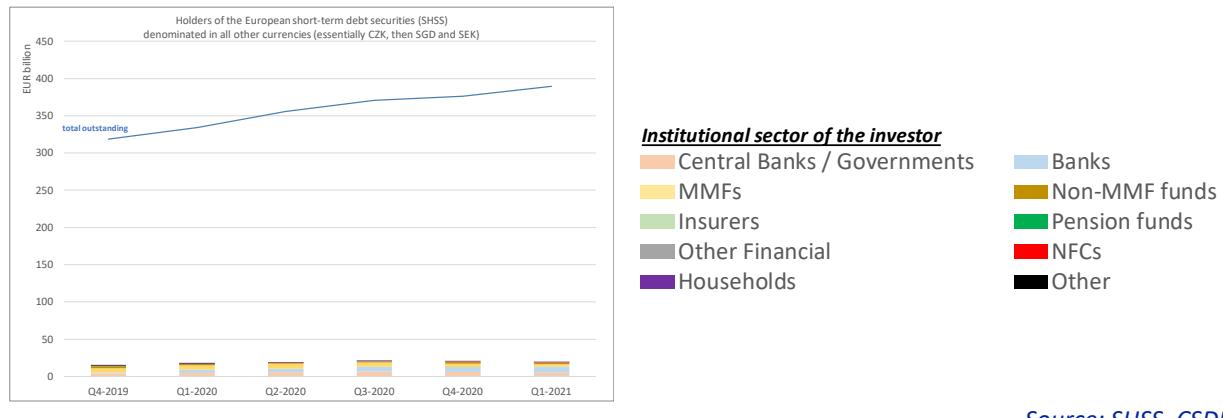
Figure 29 : Institutional sector of the holders of European short-term debt securities, EUR-denominated securities



Similarly, Figure 30 (top left panel) shows that, according to SHSS, at year-end 2020, MMFs held €160bn worth of GBP denominated short-term securities, while the total net assets of GBP denominated MMFs was around €300bn at that time. Last, at the end of 2020, MMFs were reported to hold €84bn worth of USD-denominated short-term securities (see Figure 30 – top right panel), while USD-denominated MMFs amounted to €430bn by end-year (see [ESRB, 2021](#)).

Figure 30 : Institutional sector of the holders of European short-term debt securities, foreign currencies





Consequently, although SHSS does provide some very useful information, the magnitude of the data gaps implies that we only have a partial view on securities holdings, which limits the ability to draw definitive conclusions on the structure and behavior of the short-term debt markets.

5. CONCLUSION / REMAINING ISSUES TO INVESTIGATE ON THE SHORT-TERM ECOSYSTEM

As indicated in introduction, MMFs concentrated much of the national supervisors and international organizations in the aftermath of the crisis. This note is an initial attempt to complete the diagnosis of the March 2020 episode by looking at the short-term debt securities market on which MMFs invest. As we showed, much work is still needed to get a better knowledge of the short-term funding ecosystem, a necessary step to improve its regulation, oversight, and functioning.

As of today, we understand the European market for short-term debt securities to be fragmented and opaque. Relevant information is spread over multiple institutions, none of which is actually able to provide alone a comprehensive picture of the market due to partial reporting, limited remit, confusing terminologies etc.

With this paper, we conducted a stock-taking exercise to locate the data sources and see how we could combine them in order to describe the market as clearly as possible. In particular, we highlighted the data gaps, as well as the potentially overlapping reporting perimeters when we identified them. Our analysis was designed to complement the policy work on MMFs undertaken by the ESRB in 2021, by shedding lights on the market lying upstream as called for by the Board of the institution.

Yet this initial work is definitely not sufficient and must be completed: activity on the secondary market is almost entirely unknown (bids, offers, prices and volumes actually exchanged), average rates at issuance are only disclosed on some segments, credit ratings and CRAs' market shares on the short-term debt segment have not yet been assessed. Absent this information, we remain pretty blind on the actual functioning of the market for short term debt. We do know that the market for CP/CD is essentially OTC, hold-to-maturity, and intermediated by brokers, but we ignore the size of their inventories and their actual balance sheet capacity, just as we are unable to assess the cost of liquidity, the price adjustments in crisis time (or lack thereof), or the composition of the direct (unintermediated) investor base. The data would also enable a comparative analysis between the European and US short term debt markets, thus understanding the differences induced by the more "bank-centric" funding structure of Europe.

Once we know more about this market, its functioning and weaknesses, we will be able to consider policy proposals to make it work better, especially in crisis times. Indeed, aside from its policy recommendations concerning MMFs, the FSB called for an improvement of the disclosure and reporting requirements concerning the short-term funding market (including the market for CP/CD) as well as for a reflection on ways to improve the functioning of the market.⁵⁶

Improvements could take the form of:

- an evolution of the microstructure (e.g. away from the dealer-centric model towards an “all-to-all” type of platform, or thanks to a standardization of the short-term debt instruments),
- an increased transparency on volumes, prices and quotes, to attract more investors, and
- an enhanced regulatory monitoring.

These various proposals still need to be assessed and weighted against their costs and potential detrimental effects (e.g. standardization of the CP vs. contractual flexibility). This should mobilize international organizations in the coming years and we hope that the stock-taking exercise we conducted will contribute to the reflection.

Another unaddressed question of paramount importance is whether short-term debt securities are actually used to fund short-term funding needs: the very high and stable outstanding observed, even *before* the March 2020 crisis, indeed tends to indicate a significant degree of rollover. If short-term securities are recurrently used to finance longer term cash needs, then this means that issuers operate maturity transformation and are particularly vulnerable to a sudden freeze of the market.

Given the size of the market, its importance for the funding of the economy, and the vulnerabilities revealed during the March 2020 market turmoil, it might be worth considering improving transparency, standardization, and disclosure of transactions as well as clarifying which authorities should supervise these instruments.

Aside from background investigations on MMFs’ underlying assets, the ESRB’s issues note⁵⁷ also called for improving the understanding of the investors’ side. A thorough analysis of investors’ motivations to redeem their MMF shares is still needed. Indeed, leaving aside the much-discussed issue on cliff effects for CNAVs and LVNAVs, linked to the artificial “stable price” or “automatic imposition of fees and gates” features of these products (which do not seem to have impacted French VNAVs⁵⁸), several aspects of the diagnosis are still largely unexplored.

First of all, we are broadly unable to properly identify the entities that withdrew cash from MMFs and the motivations for these redemptions: on the French market, data seem to point at Insurers and non-financial corporates (NFCs), but nothing more precise could be assessed.

Some insurers appear to have redeemed from Euro MMF to pay margin calls, but so far the analysis appears only valid for NL insurance and pension funds.⁵⁹ Some NFCs appear to have been in desperate need for cash to face the costs induced by the pandemic, but data on the French market seems to point to a massive cash hoarding on bank accounts (no actual use of the cash). Additionally, market intelligence with French corporate treasurers (*Association française des trésoriers d’entreprise*, AFTE) indicates that despite the “desperate need for cash”, NFCs were not willing to issue CP above 4-5 basis points (i.e. pay a few cent on every €100) which appears pretty contradictory.

Price adjustments on the primary market for CP does not seem to have actually happened (the interaction with anticipated central bank interventions might have deterred issuers from a more rapid adjustment).

⁵⁶ Financial Stability Board (2021). [Policy proposals to enhance money market fund resilience – Final Report](#). (pp.38-39).

⁵⁷ European Systemic Risk Board (2021). [Issues note on systemic vulnerabilities of and preliminary policy considerations to reform money market funds \(MMFs\)](#). July 2021.

⁵⁸ See Darpeix, Pierre-Emmanuel (2021). [Econometric analysis of the determinants of redemption flows on French Money market funds during the 2020 Crisis](#). AMF Risk and Trends Mapping, July 2021, 33p.

⁵⁹ ECB (2020). [Financial Stability Review, Nov.2020](#), 141p. (See Box 8, pp. 100-102).

Second, more generally, the March crisis points to the very question of the circulation of liquidity through the financial system and advocates for a holistic approach to understanding liquidity in stressed times. If indeed MMF redemptions served to pay margin calls, then cash was received by derivative counterparties who do not appear to have invested it in the short-term debt securities market nor in MMFs. The use of this cash is still largely unknown. Similarly, if the cash was indeed hoarded by NFCs in bank accounts, then again banks do not appear to have channeled the deposits towards the short-term debt securities market (interaction with the banking prudential requirements).

In short, we have to understand that liquidity did not vanish altogether from the system, but was rather re-allocated, and probably hoarded. Destination of the cash is therefore a crucial issue if we want to make the short-term funding market more resilient.

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APPENDIX 1: DETAILED SCREENING OF CP DATA ON THE BANK OF ENGLAND PUBLIC DATABASE

We extracted from the BoE database all the 497 series returned with the search words “commercial paper”.⁶⁰

Of these, 219 series are totally empty (they report no data point between 2011 and 2021); 33 series refer to amounts “excluding commercial paper” and are therefore irrelevant; 84 series relate to issuance rates, but are discontinued from 30 Apr. 2013.

The remaining series can be classified as follows:

RATES:

- ↗ 24 series capture various indicative rates on the short-term market: the average discount rate for the 3-month T-bills (USD and GBP), the average 3-month Euro-Dollar deposit interest rate, the average 3-month Euro-Sterling deposit rate, the average of the 3-month EURIBOR rate, the average 3 month Euro interbank lending rate. All these indicative rates are provided on a quarterly frequency at best.
- ↗ 4 series provide the average rate for 3-month certificates of deposits (at best at a quarterly frequency) and all four are discontinued from 30 June 2018.

CENTRAL BANK INTERVENTIONS:

- ↗ 12 weekly series report the magnitude of the interventions of the BoE on the CP/CD market (only 6 relate to the “Bank of England and HM Treasury's Covid Corporate Financing Facility”, the remaining 6 are discontinued from 4 Aug. 2016)

VARIATIONS:

- ↗ 68 series indicate volumes issued, repayments, variations in outstanding decomposing by currency and issuer (type and sometimes domicile), but no reference in terms of outstanding amounts is available for these series.

OUTSTANDING AMOUNTS (MONTHLY SERIES):

- ↗ From the issuance point of view, we have 26 series:
 - Issuing agent: only UK resident MFIs (which are further decomposed between: UK-owned MFIs, UK-owned banks, US-owned bank, Japanese-owned bank, European (exc. UK)-owned bank, other developed countries-owned banks, other-owned banks).
 - Currencies: GBP, all foreign currencies (+EUR singled out).
 - + Outstanding issued by Channel Islands and Isle of Man institutions in GBP/all foreign currencies, discontinued in Dec. 2020.
- ↗ From the holding point of view, we have 27 series (focus on the CP/CD issued by UK resident MFIs):
 - Holding agent: only UK resident MFIs (which are further decomposed between: UK-owned MFIs, US-owned bank, Japanese-owned bank, European (exc. UK)-owned bank, other developed countries-owned banks, other-owned banks).
 - Currencies: GBP, all foreign currencies (+EUR singled out).
 - + Holdings by Channel Islands and Isle of Man institutions in GBP/all foreign currencies, discontinued in Dec. 2020.

⁶⁰ See Bank of England Database: [Search results, Words searched: commercial, paper](#)