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ECB Debt Certificates: the European counterpart to US T-bills

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Abstract

The role of the euro in financial markets is limited by the scarcity of euro-denominated liquid short-term safe instruments to serve as “near money” and high-quality collateral—a role fulfilled by US Treasury bills in the US dollar financial “ecosystem.” It is argued that the ECB could eliminate this scarcity by issuing a large volume of its own debt certificates, and thereby expand and stabilize demand for the euro. The initiative is shown to be easy to implement and consistent with the monetary implementation framework. The main objections are likely to be political rather than economic.

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ECB Debt Certificates: the European counterpart to US T-bills

“Financial market participants need low-risk assets to collateralise transactions...in the euro area, there is no area-wide low-risk asset of sufficient scale.”

(ESRB, 2018)

Introduction

A striking difference between euro and US dollar financial markets is the absence of a euro counterpart to US Treasury bills (T-bills). US T-bills have “near money” properties that make them very well-suited to serve as highly liquid, short-term safe instruments (STSIs; see Carlson et al., 2016). The development of an “ecosystem” of dollar-denominated instruments and liquid markets has been facilitated by the ample availability of US T-bills. The richness of this ecosystem is one reason why banks and nonbanks, in Europe and elsewhere, conduct a significant share of their business in US dollars, and makes them eager to hold dollars.¹

In the absence of a euro counterpart to US T-bills, the euro financial ecosystem is less developed, and therefore the use of euro-denominated instruments is more limited in quantity and diversity than it might otherwise be. As Regling (2018) states, “the lack of depth and structure of [European] financial markets are holding back the international competitiveness of the euro.” The role of the euro in bank funding, other financial markets, and asset holdings is not commensurate with that of the euro area economies in trade and real sector activity. This tendency is apparent in the euro area, and also in outside markets where there is a scarcity of local STSIs and no euro-denominated substitute is at hand.

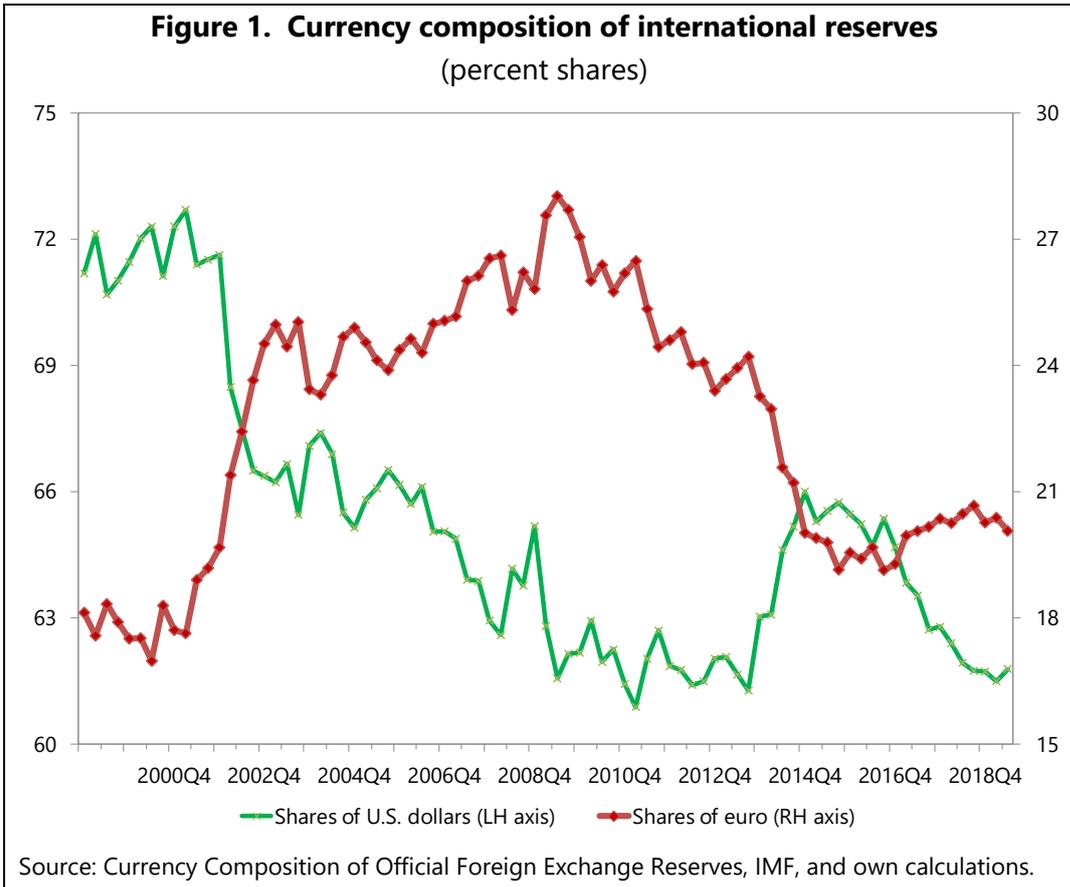
Some evidence on the contained demand for the euro is afforded by indicators of internationalization. There are good reasons why one currency tends to become dominant in finance and invoicing (Gopinath and Stein, 2018, represents a recent addition to a long literature). But dominance is a matter of degree, and in the period following the global financial crisis (GFC), the dollar’s outsized role has been reinforced (Maggiore et al., 2018). Figure 1 illustrates how the euro gained ground on the US dollar following its introduction, but lost that position from the time of the GFC and subsequent euro sovereign crisis.² The US dollar share has been roughly steady since 2005. A similar pattern is shown in the currency denomination of international bonds issued by emerging market sovereigns and corporate:³ in March 2020, the value of emerging market sovereign international bonds denominated in US dollars totaled over US\$1.1 trillion, while Euro-denominated bonds totaled the equivalent of just US\$180 billion.⁴

¹ Recent related research includes Aldasoro et al. (2018) and Ivanshina et al. (2015).

² The change in shares is also partly the result of an increase in total reserves during 2007–2014, and thereafter an increase in the total of reserves allocated by currency.

³ These securities are somewhat misleadingly called Eurobonds.

⁴ Source: Reuters. There are also small amounts issued in Japanese yen, pound Sterling, renminbi, and other currencies.



The core argument of this paper is that the issuance of ECB certificates (denoted “E-bills”), on a large scale, would create such a US T-bill counterpart. The ample availability of this safe asset would lead to the deepening and stabilization of demand for the euro, and promote the development of euro capital markets. The paper sets out the motivation for the proposal; list more detailed aspects that would have to be addressed to make E-bill issuance practical and as worthwhile as possible; compares this proposal to related proposals made by others; and tries to identify and respond to some counter-arguments.

Motivation

The dollar and euro financial market ecosystems

The status of US T-bills as widely-favored STSI is supported by a number of factors. The stock of T-bills outstanding is large, maintained by regular new issues. The US government counts as being default free, and investors are confident that the US government will make sure repayment is not disrupted (Prasad, 2014; Hager, 2017). US T-bills are of short maturity, issued in a stable macro environment, and therefore they have limited interest rate risk. Their regulatory treatment, in terms of capital and liquidity requirements for example, is consistent and favorable. In addition, they are issued under US Federal law, and the primary market brokers and dealers are subject to rigorous US regulation and supervision. In some ways they fulfill the role of STSI even better than do deposits with the Federal Reserve System: anyone can hold T-bills, and banks can use them to obtain central bank refinancing, whereas only certain institutions (mainly banks) can have

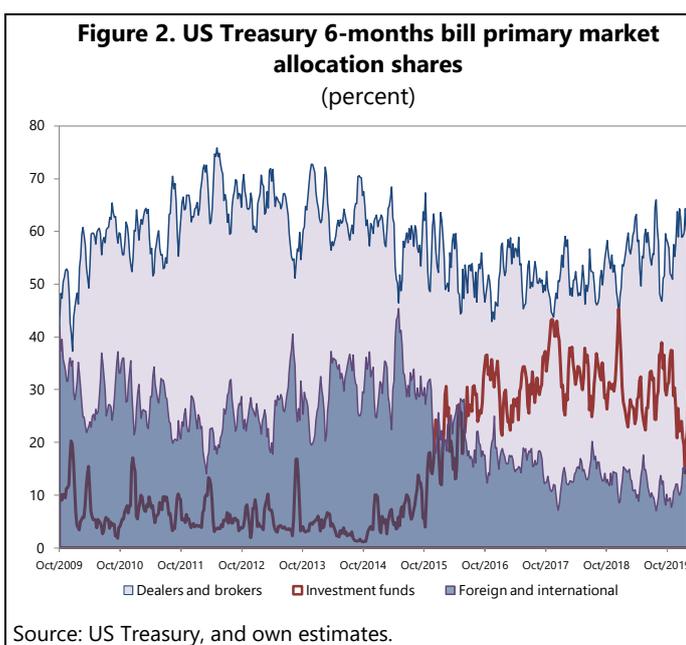
deposits at the Fed, so a nonbank cannot directly offer or acquire collateral in the latter form.⁵ The US authorities value this status for various reasons, and take action to ensure that it is maintained (Box 1).

Box 1. US T-Bill Policy

At end-2019, there were US\$1.15 trillion in US 6-months bills outstanding, and US\$1.37 trillion in other bills with maturity of up to 12 months. Bills constituted 14.5 percent of all Federal government market debt, and a higher proportion of that not held by the Federal reserve system, which holds mainly bonds. At that time, US\$2.68 trillion in US T-bonds and notes with a residual maturity of under 6 months were outstanding, but it is well-documented that coupon-bearing instruments and bonds approaching their maturity date are less liquid than bills of the same duration (Diaz and Escoban, 2017; Goyenko et al., 2011).

The regular primary market tenders attract diverse participants from around the globe. The main bidders are dealers and brokers (including banks); investment funds; and international bidders (Figure 2). The shares of these different groups have varied over time, but none is ever dominant.

The distribution of the stock outstanding cannot be tracked precisely, but the Treasury International Capital System survey of US-resident custodians suggests that at least US\$709 billion in short-term debt was held outside the US



as of June 2019, of which US\$285 billion was held by foreign official institutions. The total has been roughly steady in recent years but more than tripled between June 2007 and June 2009, i.e., in the course of the GFC.

The US authorities have been successful in establishing US T-bills as the global benchmark, and therefore the investor base is large and diverse, and the pricing favorable. It is rational for the US to concentrate issuance in relatively short maturities and in particular to support the market for their T-bills. The published reports and minutes of the Treasury Borrowing Advisory Committee (TBAC; materials available on various pages at <https://home.treasury.gov>) provide insights into the thinking of the US Treasury and major market participants. The TBAC views the maintenance

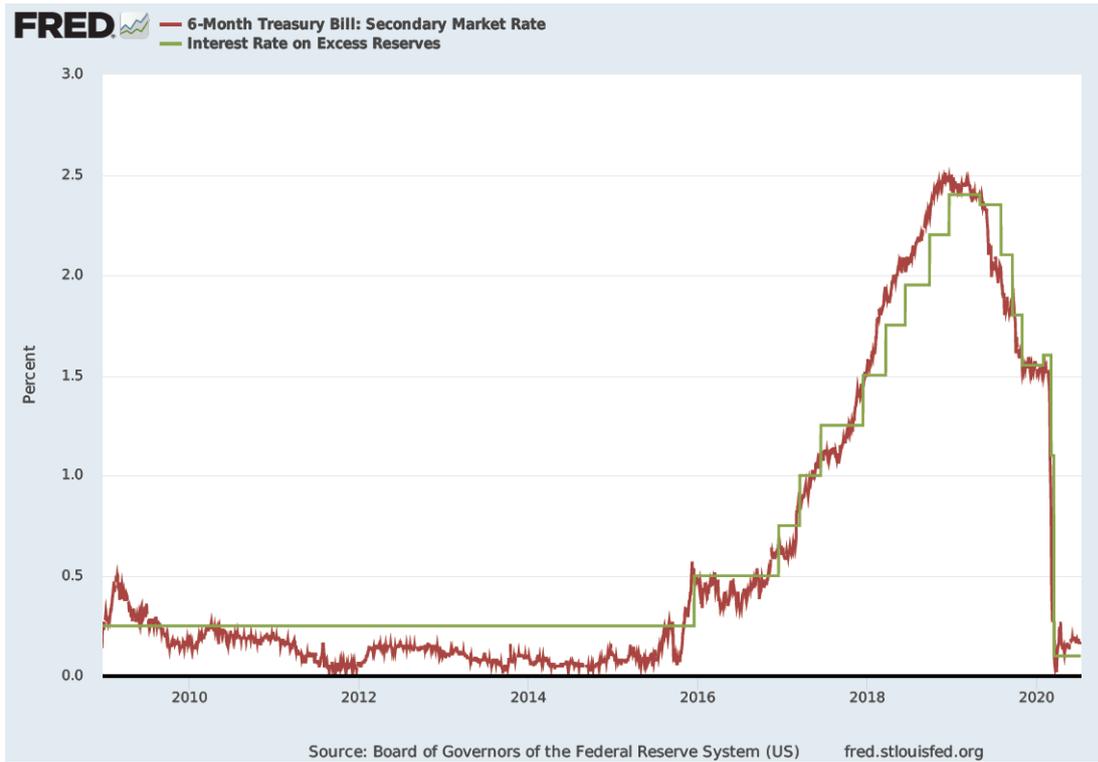
⁵ For example, money market funds do not hold central bank accounts. Also, following the GFC, they may have become more wary of assuming that all markets remain liquid. Hence, State Street Global Advisors (2015) advises that "Money market portfolio managers now think of liquidity in terms of their maturity profile. They primarily focus on using maturing bonds to provide readily available cash to meet shareholder redemptions."

of a substantial stock of T-bills as a stabilizing force (e.g., see the reports for 2016Q4 and 2019Q4), stressing that “smooth market functioning and adequate supply of T-Bills are vital.” The TBAC suggested in 2017Q4 that “given the market’s demand for T-bills and the significant financing gap confronting the Treasury in the coming years, the presenting members suggested that the T-bill sector can absorb significant volumes of new supply,” and recommended that a quarter to a third of US government marketable debt be in the form of T-bills. It was noted in 2020Q1 that a “supply of privately-held T-Bills ... in the mid \$1.8 trillion range [is] ... within the range that primary dealers estimated to be the minimum supply needed to ensure benchmark liquidity.”

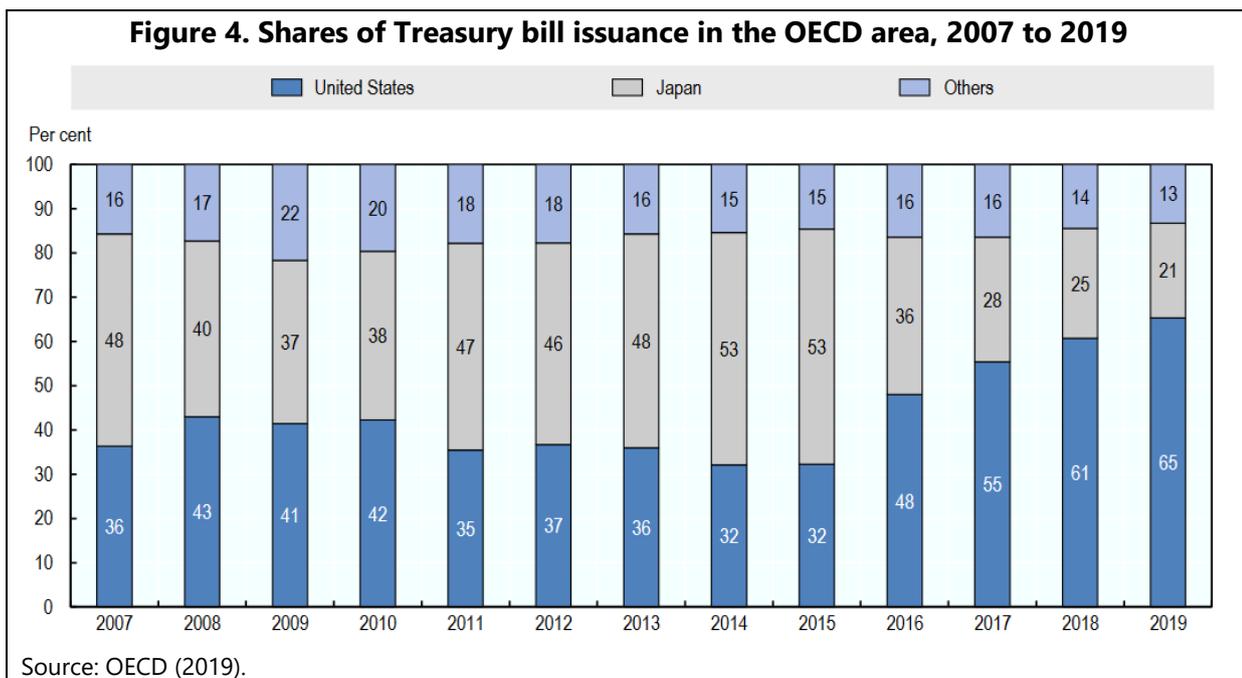
US bills are priced to reflect their special status and properties that make them, for some market participants, more useful than central bank money. Figure 3 shows that yields on 6-months bills are typically 5 to 20 basis points below the interest rate on banks’ excess reserves, except when an imminent policy rate increase is expected (see also Carlson, *op. cit.*; Gourinchas et al., 2010; Krishnamurthy and Vissing-Jorgensen, 2012; Maggiori, 2013; Nagel, 2016). The lower part of Figure 3 shows that the 6-months bill yield is closely aligned with, and often slightly below the Fed Funds rate at which banks can obtain funding.⁶ The 6-month bills thus often yield less than the cost of funds or what can be obtained on a deposit at the Fed. The so-called “convenience yield” is interpreted as reflecting a combination of the assets’ liquidity and eligibility for various purposes, such as obtaining liquidity through a repo operation. The evidence suggests that this form of “exorbitant privilege” increases sharply during stress periods, as investors seek safety from both credit risk and market illiquidity. Recently, the premium on US Treasury bonds seems to have declined while that on T-bills remains stable (Du et al., 2018).

⁶ During earlier periods before excess reserves were remunerated, the 6-month T-bill yield was often well below the Fed Funds rate when rates were stable or falling, as occurred again from mid-2019.

Figure 3. US T-bill yields, interest rate on excess reserves, and the effective Fed Funds rate (percent)



In contrast, Euro-denominated STSs consist almost entirely of central bank money, which is available only to banks. The volume of highly-rated short-term euro-denominated negotiable bills is very small.⁷ For example, at end-2019 there was just €13 billion in German government bills (known as Bubills) in the hands of the public, constituting 1.4 percent of German government debt.⁸ Similarly, the Netherlands at end-2019 had outstanding just €16.4 billion in bills, relative to total government debt of €307 billion. Total euro area government debt with initial maturity under one year at that point stood at €410 billion; some of those stocks would not be viewed in the market as free of default risk or very liquid.⁹ European countries have issued substantially more bills as part of their immediate response to financing needs created by the COVID-19 crisis.¹⁰ Even so the total volume of euro area government-issued candidate STSs is at least one order of magnitude smaller than that of the US\$ counterpart. Correspondingly, global sovereign bill markets are dominated by the US and, to a lesser extent, Japan, as shown in Figure 4.



This asymmetry largely reflects differences in the strategies of the respective debt management offices (DMOs). Most European countries have adopted a strategy of building up medium- to long-term benchmark bonds. Their debt management agencies are well able to finance normal

⁷ These data were obtained from the websites of the various national treasuries and debt management agencies, and the ECB data warehouse. National data include variable rate bonds but excludes inflation-protected bonds.

⁸ The German Federal Government Finance Agency announced at end-2019 the intention to increase Bubill issuance in 2020, aiming at a stock outstanding closer to €20 billion, in order to improve market liquidity.

⁹ Besides bills, German government debt with a residual maturity of under 6 months amounted to €83 billion at end-2019, and the Netherlands had €30 billion in bonds with short residual maturity. Total euro area longer term debt with a residual maturity under one year amounted to €883 billion. However, while bonds with short residual maturity carry little market or credit risk, typically market liquidity dries up as the maturity date approached; Galliani et al. (2014) present a relevant study of euro-denominated bonds.

¹⁰ The amount of Bubills outstanding rose to €79.5 billion by mid-July 2020, of which €40 billion had initial maturity of 12-months.

short-term fluctuations in government funding needs without recourse to large and variable bill issuance. No European country alone can reach and sustain the “critical mass” in bills outstanding such that they become a widely-held STSI, without losing the advantages of a debt management strategy centered on medium-term bonds.

The paucity of liquid euro STSI in negotiable form, as opposed to central bank money, has large and arguably deleterious effects on the euro funding market, mainly because best-quality, universally useable collateral is in limited supply. Collateral plays a central role in modern financial markets and in monetary policy implementation, notably because the provision of collateral is one leg of repurchase (repo) transactions. The centrality of that role is most obvious when shifts in the supply of and demand for assets that can serve as collateral disrupt funding and credit markets, and thus financial stability and monetary conditions. The GFC and its aftermath demonstrated how the demand for collateral can increase sharply in stress periods. Many instruments that are useable as funding collateral during normal times may lose this status when, say, there are concerns over issuers’ liquidity or creditworthiness. Assets issued by certain sovereigns can cease to be very good collateral in the eyes of the market; repo pricing reacts accordingly.¹¹ Moreover, the “velocity” of collateral can fluctuate, for example, because high quality liquidity may be hoarded during stress periods, and willingness to rehypothecate may vary across time and across assets. These shifts resulted in the emergence or widening of pricing differentials, with prices of disfavored assets falling markedly relative to those considered to be the best collateral.

The importance of collateralization and the instruments that are suited to serve as collateral has increased since the GFC due to changes in market practice and regulation (Adrian and Shin, 2010; Singh, 2013, and 2016). Funding markets have seen a reduction in unsecured lending and an increase in repos and other secured funding transactions. Demand for use of “special” collateral in repo transactions has gone up.¹² On the regulatory side, the strengthened liquidity coverage ratio (LCR) requires that banks hold more of what are defined by regulation as high-quality liquid assets (HQLA).¹³ It is worth noting that STSIs are a sub-set of HQLA, and even distinct from what in regulation is classed as “Level 1” HQLA, which includes government securities of longer maturity.

The GFC experience and the changes thereafter provoked debate about a possible scarcity of collateral and safe assets generally, and concern over associated stability implications. The putative scarcity has been attributed to behavioral shifts in the aftermath of the European sovereign debt crisis; regulatory changes; quantitative easing (QE), which meant that the Eurosystem bought up large quantities of HQLA and especially the lowest-risk sovereign bonds;¹⁴

¹¹ Brand et al. (2019) provide detailed evidence for this phenomenon from euro repo markets.

¹² See for example Corradin and Maddaloni (2017).

¹³ The usefulness of government securities as HQLA is one reason why banks hold them in such large quantities, even though they are thereby exposed to major risks if the finances of the respective sovereign come under pressure (Gennaioli et al., 2014).

¹⁴ The ECB deems a wide range of sovereign and non-sovereign assets to be eligible to be collateral for refinancing and to be bought under the asset purchase programs. Nonetheless, the purchases of highest

and relatively rapid fiscal consolidation in highly rated countries such as Germany and the Netherlands. The European Securities Market Authority (2018) has frequently warned that “high levels of collateral scarcity premia reflect possible shortages of high-quality collateral ...This may fuel liquidity risk and volatility in funding costs and reduce overall market confidence” (see also ESMA, 2016; and Hale, 2016). Aggarwal et al. (2018), Fuhrer et al. (2017), and Jank and Moench (2018), for example, present evidence on the significant effects of the LCR introduction and the deployment of QE on asset pricing and repo activity.¹⁵ Eichengreen (2016) suggests that scarcity of liquid assets, typically US T-bills and T-bonds, contributed to a decline in cross-border banking flows. Caballero and Farhi (2017) and Caballero et al (2017) argue that a relative lack of “safe” assets has contributed to the secular decline in the real interest rate, a higher equity premium, and slower growth.

Currently there does not seem to be a generalized lack of collateral, and specifically HQLA. Portes (2013) and Grandia et al. (2019) suggest that the quantity of instruments outstanding that could serve as HQLA is still ample. Certainly there is a large volume of assets that count towards HQLA as defined in regulations—though those regulations do not ensure that assets are in fact liquid or viewed as free of default risk, and markets may turn against some of those assets in stress conditions. The ECB’s securities lending program has been successful in increasing the “fluidity” of HQLA; securities bought under QE are largely available to be lent to market participants as needed (BIS, 2019; Cœuré, *op. cit.*).

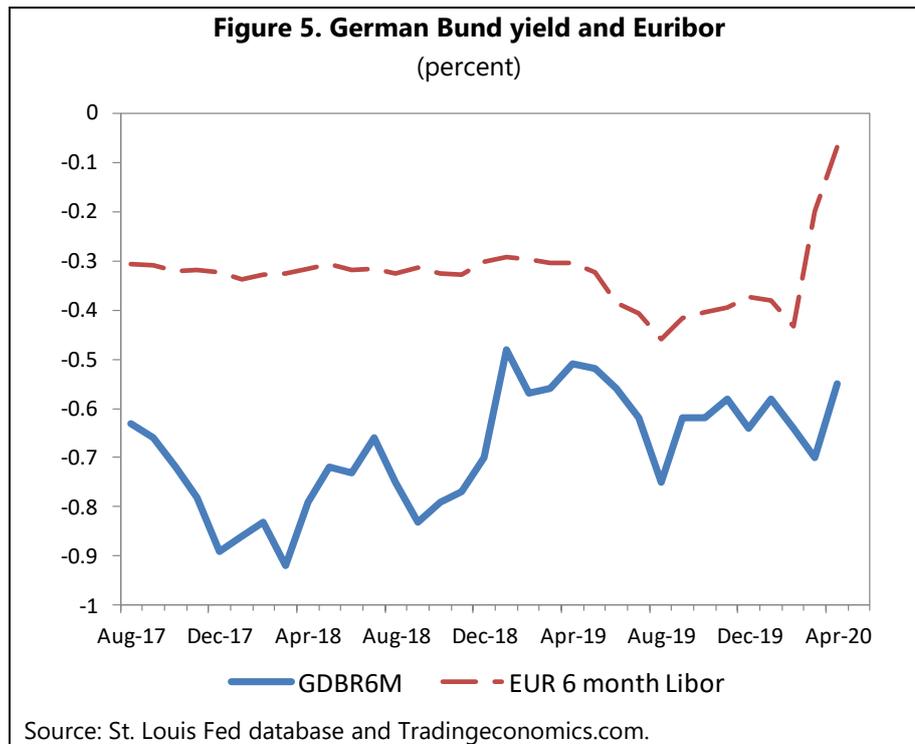
However, the limitation on the current quantity of euro-denominated, negotiable STSIs—as opposed to safe bonds or reserve money—may reduce market liquidity, distort price signals, and discourage wider use of the euro. Some euro-denominated securities may be of very low risk but of limited market liquidity even during non-stress periods (Ranasinghe, 2019; Stubbington, 2019).¹⁶ German Bunds seem to be exceptionally highly valued on an on-going basis (Ejsing and Sihvonen, 2009; Paret and Weber, 2019). Furthermore, the premium on the few available euro STSIs can rise significantly in stress periods or as a consequence of policy action, and the increase can be persistent. Deutsche Bundesbank (2018) shows that the yields on short-term Bunds moved closely with the Eonia swap rate until 2016, after which a significant divergence opened up, and also the short-term correlation diminished. The divergence seems to have been maintained: Figure 5 shows recent developments in the German 6-months sovereign yield and the 6-months Euribor yield; the spread is significant relative to the low absolute level of rates, and quite variable.¹⁷

quality HQLA were significant relative to the “free float” of those assets, which often land in the portfolios of “buy and hold” investors..

¹⁵ See also Arrata et al. (2018); Bleich and Dombret (2015); Bussière et al. (2016); Ferrari and Mazzacurati (2017); Gourinchas and Jeanne (2012); and Milesi-Ferretti and Tille (2011).

¹⁶ Net STSI availability can fluctuate even in US markets from time to time (Jones, 2020).

¹⁷ The comparable spread for the US, known as the TED, is interpreted as a measure of insecurity in U.S. dollar markets.



Benefits of having more euro liquid STSIs

Having available an ample supply of euro liquid STSIs would bring a number of benefits. The first several benefits are especially relevant to monetary policy implementation and transmission. The benefits listed later are of wider import.

- Ensure ample supply of reliably high-quality repo collateral and stabilize wholesale markets

Having substantially more euro STSIs would greatly expand the supply of euro-denominated collateral that is viewed as being of unimpeachable quality even in stress situations, and thus improve the reliability of market functioning. These instruments are by design protected from interest rate risk and fluctuations in concern about sovereign risk. Hence, they would not be affected by an adverse feedback loop between the value of collateral and market stress. Moreover, with an ample supply on hand, the incentive to hoard “special” collateral would be reduced and variations in the velocity of collateral would be dampened.

- Diversify and increase demand for the Euro

Readily available euro liquid STSIs would provide a variety of institutions with an effective means to managing their liquidity, and in particular their euro liquidity, directly and without reliance on deposits at euro area banks. The value of the instruments as collateral for repos would add to its effectiveness for this purpose. The relevant institutions might be nonbank financial institutions or nonfinancial corporations with large treasury operations, inside the euro area or outside it. Euro liquid STSIs would be especially attractive to rate-insensitive asset managers, including central banks. More diversified demand for the euro would tend to be more stable.

Initially the increased demand for the euro STSIs would be offset by reduced demand for euro bank deposits, but overall demand could increase if having available an ample supply of euro liquid STSIs succeeds in making euro funding markets more stable. Many of the relevant institution currently manage liquidity and short-term investment with heavy reliance on US dollar-denominated instruments. US government securities and especially T-bills currently prevail as safe assets, in part because there are few alternatives of sufficient scale. Attractive euro STSIs may lure institutions and investors to adopt a more diversified approach. However, the quantum of euro demand is not in itself as important as the expansion of a committed investor base that will stay with euro-denominated assets in the face of various shocks.

- Foster the euro “ecosystem”

Going beyond funding markets, having more euro liquid STSIs would help establish a more diverse euro financial ecosystem. For example, the euro STSIs could readily be used to meet marginal requirements on euro-denominated derivative contracts, and their yield could form the basis for derivatives pricing. The development of the euro ecosystem would feed back into stronger and more diverse demand for the euro, and to more informative pricing.

- Stabilize risk premia

During stress times, an ample supply of reliably liquid STSIs may dampen fluctuations in the pricing of all assets. As shown in the model presented in Appendix I, having more of the safe asset may make excess returns on related riskier assets less sensitive to variations in risk and perceived risk. Intuitively, with more safe euro instruments outstanding, riskier assets make up a smaller share of the overall euro fixed instrument portfolio, so there is less incentive to rebalance that portfolio (or to flee to non-euro assets) when sentiment deteriorates. Hence, equilibrating price movements are smaller. One might say that the safe asset acts as ballast for the whole asset class.

- Attenuate banks’ exposure to their respective sovereigns

Insofar as a bank were to replace securities issued by its respective sovereign by a distinct euro STSI, it would be less affected by fluctuation in the yield on the former caused, for example, by variations in perceived credit risk. A bank may wish to add some euro STSIs to its portfolio in place of sovereign bonds because of the former’s higher liquidity, consistent usefulness as collateral, and lower exposure to market risk. Feedback between the financial strength of the sovereign and that of the bank would thereby be reduced. However, this effect is likely to be modest because banks may be relatively yield sensitive: presumably they currently choose a mixture of securities and Eurosystem deposits in a way that trades off yield, liquidity, and exposure to various risk factors. If so, an expanded supply of euro STSIs would not make much difference to their opportunity set, whereas it would significantly enrich the opportunity set available to non-banks.

- Reduce burdens on banks

An expanded supply of “near money” that substitutes for a part of bank deposits should be welcomed by the banks. First, the banks may themselves prefer to hold a form of collateral that reliably maintains its value and liquidity. At least as importantly, banks may benefit from a reduction in their short-term deposit liabilities and a corresponding reduction in their excess reserves held at the Eurosystem (the mechanism is explained below) when nonbanks shift to managing more of their liquidity using euro STSIs. Profit margins on that business are likely to be close to or even below zero; banks may feel obliged to offer unlimited current account services in order to maintain customer relations. Scaling back that business should not hurt profitability. Furthermore, banks have to hold costly capital against this component of their balance sheet in order to meet (albeit indicative) leverage requirements.¹⁸

- Make the financial system less bank centric

While the euro area financial system is less bank-centric than it used to be—especially in the provision of longer-term savings and finance vehicles—it is in some regards still bank dominated. In particular, short-term assets (funding) consist largely of claims on (lending from) banks, so any disruption to the banking system impacts the whole economy, with little scope for rapid switching to alternatives. An expanded supply of euro STSIs and reduction in bank deposits would reduce dependence on banks and could engender greater diversity in the providers of short-term financing.

- Promote Capital Markets Union (CMU)

Still more generally, an expansion in the market for euro STSIs would support the ambition to establish a true CMU. Capital markets in Europe are still significantly divided along national lines, in part because there are few truly common assets. As de Cos (2019) asserts, “the completion of the Capital Markets Union is hardly possible without a common benchmark for investors and firms at the euro area level ... A single, risk-free asset would likely become a common benchmark, allowing the prices of equities and bonds across the euro area to reflect fundamental risk more clearly.” At the long end of the term structure, bonds issued by consistently very highly-rated sovereigns (Germany, Netherlands) and international financial institutions such as the European Stability Mechanism (ESM) could serve as benchmarks.¹⁹ The absence of a suitable benchmark is most acute at the short end, and a euro STSI could fulfill this function.

Market participants do not have incentives to supply such a liquid STSI in large quantities on a sustained basis. Gorton and Ordoñez (2013) emphasize that the private supply of collateral responds to any shortage of government-supplied collateral, but only up to a point. Also, the two

¹⁸ The assumed counterpart excess reserves do not count towards risk-weighted capital requirements and also help meet the liquidity coverage ratio, so observance of prudential requirements applicable to those variables is not affected.

¹⁹ There may be some scarcity and liquidity premium embedded in Bund rates, but these factors are almost certainly smaller for other highly-rated sovereigns.

instrument classes are not perfect substitutes, especially in a stress situation. Possibly a private short-term swap could be constructed that is effectively free of default, legal, and operational risks, such that it is considered an STSI. However, evidence has already been presented that private swaps are not priced in line with Bubbles. Also, constructing the swaps would be a low-margin business, offset by regulatory costs, and constrained by the stock of suitable assets. Hence, the private supply of the very best STSIs may be limited. More importantly, no private institution has an incentive to issue such instruments regularly and on a large scale, such that they would become a new benchmark and alter the financial ecosystem. Likewise, and as indicated above, national DMOs are not mandated to supply enough euro STSIs to transform the ecosystem, even if they had the balance sheet size to do so. The same limitation applies to national central banks (NCBs).

Proposal

ECB mandate and capacity

Fortunately, the Eurosystem and specifically the ECB has on hand the means to supply a euro STSI in large quantities, namely, by issuing its own short-term debt certificates (E-bills). The post-GFC expansion in the central bank balance sheet, including through the purchase of HQLA, implies that the ECB could issue its own E-bills regularly and in large volumes. They would be default-free, and with appropriate characteristics they could meet a substantial part of demand for euro liquid STSIs. The Eurosystem balance sheet would not expand because banks' excess deposits in the Eurosystem would diminish one for one.

The ECB has the mandate and motivation. The issuance of E-bills would be justified for the ECB because doing so would stabilize monetary conditions and strengthen the monetary transmission mechanism: as Cœuré (2016) affirms, "[safe assets] increasingly have 'moneyness'. And stabilising money is what central banks are for." More specifically, and quoting again Cœuré (2017), "repo rates are a prime channel through which changes in the monetary policy stance are transmitted to the broader financial market and the real economy."²⁰ Having a large stock outstanding of inherently top-class euro collateral would help ensure that funding and repo markets function more consistently, which is vital for monetary policy effectiveness and the fulfillment of the central bank's responsibilities. More widespread demand for the euro, from banks but also others, mainly in Europe but also possibly internationally, would help diversify and stabilize demand for the euro.

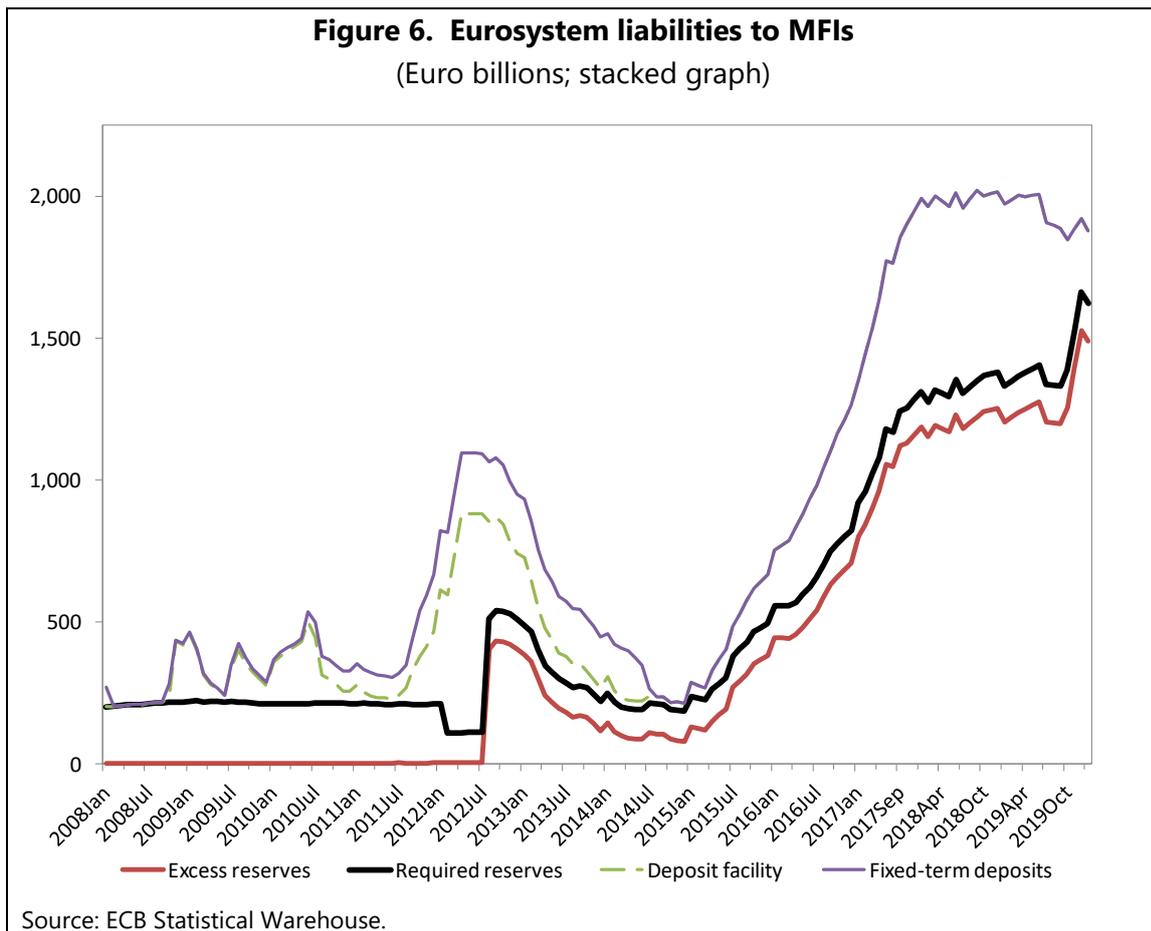
Moreover, E-bill issuance and development of the euro ecosystem would reduce complications arising from the predominance of dollar denomination in many contracts, and the magnitude of dollar funding.²¹ Central banks have established mechanisms, such as swap lines, to ensure that they can provide dollar funding even in times of stress. However, the system would be more robust if European banks made more use of euro-denominated instruments, and had less need for short-term dollar funding. E-bills could contribute substantially to this end. A less dollar-

²⁰ See also Singh and Stella (2012).

²¹ See International Monetary Fund (2019).

dominated system would be beneficial “[n]ot only to strengthen the international monetary system, but also to protect Europe’s interests” (Regling, 2018). The ECB has motivation enough to issue E-bills even if it does not care about the burden on banks, making the financial system less bank centric, or promoting the CMU.

The current composition of the Eurosystem balance sheet suggests that E-bills could be issued in quantities comparable to that of US T-bills. Monetary financial institutions’ deposits at the Eurosystem consist of required reserves (EUR134 billion at end-2019); excess reserves in current accounts (€1,528 billion); and deposits at the standing facility (€258 billion). These levels have been roughly steady during 2016–2019 (Figure 6). The total of €1,786 billion excluding required reserves is about three quarters of the amount of US T-bills outstanding, and even exceeds the amount of 6 month T-bills outstanding.



The stock of excess reserves is currently likely to increase substantially and on a sustained basis. At the time of writing, the ECB has announced a further expansion of its asset purchasing program as part of its response to the economic impact of the Coronavirus pandemic. The counterpart will be another rise in banks’ excess reserves and fixed-term deposits, with no plans for a reversal to pre-2016 levels, let alone pre-2012 levels. In these circumstances, there will be very plentiful excess reserves, and issuing E-bills will in no way reduce the effectiveness of the marginal return on excess reserves as a monetary instrument (see below).

In light of these accounts, the specific proposal is for the ECB to issue pure discount bills with 26 week's initial maturity in bi-weekly auctions. The ECB could issue €100 billion every two weeks, building up to a total stock outstanding of €1.3 trillion with an average remaining maturity of thirteen weeks. Experience with US T-bills suggests that market demand is concentrated on 26 weeks (6 months) bills. The resultant average maturity is suitable for the purposes of providing collateral for repo and derivative transactions, where maturities are typically less than one month (ICMA, 2019). Longer initial maturities would introduce more interest rate risk and thin out tender sizes, while shorter initial maturities would leave too many outstanding bills in run-off mode and too short for collateralization purposes. Such an auction strategy would create an outstanding stock that is sufficient to meet many market needs, and indeed comparable to the stock of US treasury bills outstanding and in free float.²² Less than a tenth of the total would be rolled over every two weeks. Hence, the market would not be dependent on having frequent successful auctions, but it would be possible to vary the stock outstanding significantly in the course of a few months.

The Eurosystem would still have very substantial bank deposits on its balance sheet: based on end-2019 balance sheet data, the issuance of €1.3 trillion in E-bills would leave €134 billion in required reserves and a comfortable €486 billion in excess reserves and other bank deposits. These balances are large by pre-crisis standards, and relative to the short-term fluctuations in reserve money that have been observed in recent years.²³

Appendix II illustrates (using rounded end-2019 entries for the base case) how various balance sheets might change. The top half of the page shows the consolidated Eurosystem balance sheet and the balance sheets of the ECB and the aggregated national central banks (NCBs), now and how they might look after issue of E-bills. The main changes are the shift in Eurosystem liabilities from deposits of banks into E-bills, and the creation of a book-entry claim of the ECB on NCBs, which more than offsets an existing claim in the other direction.

It is worth noting that the aggregate shifts between the ECB and NCBs could mask large differences across NCBs. For example, at end-2019 the Deutsche Bundesbank held gross intra-Eurosystem claims of €895 billion, and its deposit liabilities towards commercial banks amounted to €560 billion. E-bill issuance would reduce the Bundesbank's net claims on the rest of the Eurosystem by an amount that depends on how much is channeled through German banks.²⁴

The lower half of the table in Appendix II illustrates possible change in the balance sheet of commercial banks and of "others," such as European and non-European nonbank financial institutions and nonfinancial corporations; only relevant parts of the balance sheet of "others" are

²² Issuing €75 billion every two weeks would produce a stock outstanding very close to the current stock of U.S. 6-month T-bills.

²³ Before 2012, excess reserves were close to zero, and amounts on term deposit were well contained.

²⁴ The relevant intra-Eurosystem claims consist of the so-called Target2 balances. At end-2019 other major creditor central banks were those of Luxembourg, Finland and the Netherlands; the central banks of Italy, France, and Portugal held the largest negative balances. See:

https://www.ecb.europa.eu/stats/policy_and_exchange_rates/target_balances/html/index.en.html

shown. It is assumed that, after issuance and initial rounds of trading, banks chose to keep €300 billion in E-bills, which they fund half by selling sovereign bonds and half by other means. The “others” choose to hold €1,000 billion in E-bills instead of keeping funds in bank deposits; commercial banks’ balance sheets contract correspondingly.

Properties of E-bills

E-bills can and should be designed to maximize their usefulness as STSIs. Such an approach will make them close substitutes for (6 month) US T-bills, except for the currency denomination, and also for high-powered money available to banks.

E-bills would indeed be risk-free or, to be more accurate, free of default risk. As a central bank, the ECB is always able to service its own certificates. Since the E-bills are of short maturity, interest rate risk would be small. Even operational risk should be negligible given the ECB’s role in the large value payment system (T2) and securities settlement systems (T2S), its technical capacities, and its past experience with issuing certificates.

The volume of issuance and homogeneity of the instrument should help ensure market liquidity. Commitment to achieving and maintaining a large volume outstanding will be key. Introducing E-bills on a very small scale or only for a short period would not be nearly as useful because it would not sufficiently incentivize market participants to “invest” in becoming familiar with a new instrument and adapting their investment and funding strategies for its presence. Small-scale issuance and without a commitment to a sustained program would not provide much indication of the level of demand once a “critical mass” is reached.

There is some risk that E-bills prove so popular that most end up with “buy and hold” investors, such as central banks who want euro-denominated international reserves. But with the proposed quantity outstanding and large bi-weekly tenders, this concern should be contained.²⁵

E-bills would be eligible assets for obtaining central bank liquidity with a minimal “haircut” at the overnight marginal lending facility. The eligibility would support demand and ensure that they would be viewed as liquid “near money” by commercial banks with access to the Eurosystem. Eligibility for collateralizing overnight lending, at a rate set by the ECB, would also cap fluctuations in E-bill yields.²⁶

The E-bills should be as homogeneous as possible in order to be attractive as an STSI and promote liquidity. Except regarding remaining maturity, the entire stock of bills should be fungible. Hence, anyone seeking to buy, sell or otherwise do a deal involving E-bills would not need to assess the features of individual bills, and could search across the entire investor base for a counterpart.

²⁵ If “buy and hold” were pervasive, price discovery could be promoted by restricting access to the primary auctions, so that primary auction participants would have incentives to resell to ultimate holders.

²⁶ The US Federal Reserve does not have a standing overnight rediscount facility. It has been suggested that establishing such a facility would improve the functioning of US money markets and reduce demand for excess reserves (Andolfatto and Ihrig, 2019).

One element of this homogeneity is that E-bills should legally be issued by the ECB itself rather than by the NCBs. Their legal standing will be all the same; there will be no question of people preferring bills issued by one NCB rather than another when posting collateral.²⁷ However, issuance and redemption operations could be undertaken by NCBs, in keeping with the Eurosystem's decentralized practices in monetary policy implementation.

Also, the E-bills should all be issued in one, convenient jurisdictions. For example, the E-bills could be issued under the German law, as the jurisdiction of the ECB. It may be worth surveying market participants to find whether there is a consensus preference towards issuance in a particular jurisdiction, for example, of certain central counter parties or central security depositories (CSDs). E-bills could even potentially be issued under the law of another jurisdiction such as that of New York or England, though such a practice may be politically hard to explain. Furthermore, the bills could all be deposited at one or several central repositories, while the ultimate ownership is maintained by a single registrar to ensure the integrity of the issuance.

Arrangements would need to be put in place in order to ensure rapid, reliable, and cheap issuance and subsequent clearing and settlement. The existing T2S infrastructure is fully operational, robust, and efficient. In due course the E-bills could be issued through the common mechanism that is now under discussion (Box 2).

²⁷ NCBs could issue their own bills, in some cases in large volumes. For example, at end-2019 the Deutsche Bundesbank had deposit liabilities towards banks of €564 billion that could be replaced by "Buba-bills." However, an approach based on NCB issuance would perpetuate an element of national fragmentation and make it more difficult to achieve critical mass. Moreover, an individual NCB presumably does not have a mandate to act so as to enhance monetary transmission in the euro area as a whole.

Box 2. European Distribution of Debt Instruments (EDDI)

The current mechanisms of issuance and settlement of euro-denominated financial instrument presents a number of challenges Not all European investors may have access on an equal basis, as the location of issuance might put local actors in a preferential position. The cost and availability of funding may depend on the local market to which an issuer has access: some issuers may be disadvantaged if they have to rely on a high-cost local issuance and settlement mechanism and an illiquid local market. The disadvantage may be most pertinent for smaller issuers. The hierarchical model with several layers of intermediaries has an impact on the efficiency and costs associated with access to a given security across the EU financial landscape.

To remedy these drawbacks, the ECB has proposed to establish a centralized European service for the issuance and initial distribution of debt securities in the EU. In particular, the ECB would set up a centralized mechanism interlinking the issuers and national CSDs to facilitate the pre-issuance and initial distribution of debt securities in the EU. The mechanism would settle in central bank money but be useable by privately-issued instruments. Issuing E-bills through this mechanism would be help ensure its wide acceptable and generate substantial transaction volumes.

The ECB launched a public consultation for its proposal, and at the time of writing is processing the responses (European Central Bank, 2019).

Process of introduction

Introducing E-bills would be institutionally simple. There would be no need for a new institution, or the establishment of any kind of market makers or institutions that collect assets and resell them in tranches. No private sector institution would have to be specially motivated to set up operations and start offering new products.

One advantage of the E-bills proposal is that regulations and laws already allow for the possibility of their issuance, and indeed the ECB issued debt certificates during 1999-2003. The treaty establishing the ECB and its statutes include provision for the issuance of its own debt certificates (European Central Bank, 2014, and 2015). Articles 4 and 5 of the "Guideline (EU) 2015/510 of the European Central Bank of December 2014 on the implementation of the Eurosystem monetary policy framework" mention ECB debt certificates as a structural open market operation to be implemented using standard tender procedures.²⁸

Other current regulations allow for the possibility of issuing debt certificates, and treat E-bills quite favorably. For example, the capital risk weight would be (appropriate) zero, and the "haircut" when they are used as central bank eligible assets would be just 0.5 percent.

²⁸ The ECB and NCB accounting schemes even include lines for ECB debt certificates, currently all showing zeros.

Nonetheless, it will be necessary to check regulations, also for non-banks, the payment system, and non-financial advisors, to ensure that there's consistent and appropriate treatment of E-bills.

Part of the preparations would include a review of past ECB experience with issuing its own certificates, and of the experiences of countries such as Korea, Sweden, and Switzerland that currently do so. Historically it has been common for countries to operate arrangements where the central bank issues its own short-term instruments—typically for purposes of monetary policy implementation—while the Treasury funds itself by issuing longer-term bonds (Rule, 2011; Gray and Pongsaparn, 2015). Of particular relevance would be evidence on any spill-overs to and from funding markets and government debt markets, and the role of nonbanks. The currencies of the cited countries do not have the same international role as the euro and their markets are much smaller, but they seem to be the most comparable cases available.

National DMOs would need to be consulted and their advice sought on matters such as the cultivation of investor relations, but they themselves would not need to make substantial or immediate adjustments to their practices and strategies. First, as mentioned, European DMOs currently do not make much use of short term instruments, focusing instead on issuing medium-term bonds that better suit their government debt management needs. Second, it is not clear whether the large-scale issuance of E-bills would increase or decrease demand for national short-term bills and euro-denominated instruments generally. Possibly, a larger investor base for euro-denominated securities would be created, and the entire asset class would be viewed as less risky, so national debt managers could enjoy stronger demand for all their instruments. Finally, E-bills are designed to be substitutes for bank deposits and possibly other short-term negotiable securities in liquidity management, not for bonds as savings instruments. Hence, the shift in demand from bonds to E-bills should be relatively minor, and could be offset by a general enhancement of demand for euro-denominated securities.

It would be important to consult with a range of private sector market participants and to coordinate with institutions providing market infrastructure. Market participants may express preferences, for example, over whether to concentrate issues on a few maturity dates or whether maturities other than 6-months bills would be attractive.²⁹ They are likely to demand that the ECB commit to substantial and sustained issuance before they amend their investment and liquidity management strategies, which will incur one-off sunk costs. In any case, market participants will need time to adjust their operating procedures for the introduction of E-bills. The challenge is not technical—the T2S infrastructure is well-established. Rather, institutions will need to work out how to adapt their decision making, allocation rules, and performance criteria once E-bills become available.

²⁹ The number of maturity dates could be reduced by reopening issues (i.e., by issuing first with 26 weeks maturity, and then two weeks later with 24 weeks maturity, and perhaps again two weeks later with 22 weeks maturity remaining). Other maturities such as four and twelve weeks could be issued, in part in order to “fill in” the yield curve, but at the risk of fragmenting the market. Also, with regular issuance of 6 month bills, there would be substantial amounts of bills outstanding with shorter residual maturities.

The sale of the bills should target both European and internationally active commercial banks and nonbanks. Indeed, the mobilization of a wider, more diverse investor base for the euro is one of the motivations for the issuance of E-bills; the aim is not to provide a substitute for euro sovereign instruments, but to widen demand for euro instruments. Much of the demand may come from institutions that are relatively return-insensitive but need actively to manage liquidity (an investor class highlighted in BIS, op. cit.). Experience with US T-bills suggests that there may be strong demand from mutual funds and the treasuries of non-financial corporations.³⁰ Significant demand may come from outside of euro area. Hence, a broad-based consultation process should be undertaken, covering a range of financial institutions in the euro area and elsewhere.³¹ The aim would be to get a (rough) sense of the potential demand schedule, and, ultimately, to estimate the consumer surplus that might be generated by this non-marginal change.³²

Through these consultations, it should be possible to obtain a projection of how E-bills would be priced. If E-bills are viewed as close substitutes for B-bills, then their yield could even be below -50 basis points (the interest rate on marginal excess reserves and the ECB deposits facility at the time of writing) except when a rise in policy rates is seen as imminent. Price-insensitive investors such as central banks might acquire a significant share of the issue. The ECB would then even earn a modest profit on a net basis. However, the demand schedule is presumably price elastic, and if a substantial volume of E-bills are issued and price-sensitive investors enter the market, the yield would be somewhat higher. Indeed, such a convergence of the bill rate towards the interbank swap rate would be one important indicator that the E-bill issuance is succeeding in alleviating the scarcity of euro STSIs.

If banks place more weight on the immediacy of deposits at the Eurosystem over the negotiability of E-bills, and if demand from non-banks is relatively price sensitive, then the yield could be closer to zero, which is the current return on a substantial portion of excess reserves, but that outcome does not seem problematic. In any case, the ECB could adjust other rates to ensure profit neutrality if that were a concern.³³ Thus, contingent on broadly favorable initial

³⁰ At end-2019, deposits at euro zone banks were composed of €7.8 trillion in household deposits; €2.3 trillion in deposits of non-bank financial institutions (of which €0.5 trillion belonged to insurance undertakings and pension funds); and €2.7 trillion in deposits of non-financial corporations. So even ignoring other financial assets of these sectors and the rest of the world, it would not take a large shift in portfolios to absorb the proposed volume of E-bills. In this connection, at 2019Q3 euro area non-financial corporations also held €0.5 trillion in investment funds; €0.2 trillion in debt securities; and €4.9 trillion in other financial assets, which are mostly receivables. Investment funds held €2.3 trillion in investment and money market funds.

³¹ Market participants will wish to use consultations to send signals and to influence the ECB in ways favorable to them. For example, a bank with much excess liquidity may push towards large issuance and a positive yield. However, the ECB will be aware of these biases and can filter them out.

³² Even without taking into account any structural change in the use of the euro.

³³ If the ECB is concerned about valuation risks, issuing 6 month E-bills to replace sight or overnight deposits has the advantage of lengthening the maturity of liabilities and somewhat offsetting the long maturity of many ECB assets.

reactions from market participants, the financial risk of issuing substantial amounts on a regular basis seems to be modest.

These efforts at coordination and consultation, with market participants but also infrastructure providers and others, may suggest an optimal time to start the issuing sequence and the best day of the week for the tenders. Possibly, the best start date would be during a “normal” week without an ECB policy announcement, major holiday, or end of quarter.

Further considerations

Interaction with monetary policy implementation

Central bank certificates have traditionally been used to absorb liquidity, but that function may not be relevant to E-bills, given how the ECB now implements policy and the role of E-bills as “quasi-money.” As mentioned, the central banks of Korea, Sweden, and Switzerland regularly issue of their own certificates, and the ECB itself issued certificates during its first years of operation. Many central banks of developing and emerging market economies have done so, typically when government securities are not available.³⁴ But as explained above, issuing €1.3 trillion in E-bills would leave outstanding a large volume—close to €500 billion—of liquidity in the form of excess reserves and other deposits, even before the current round of QE. Moreover, under the proposal, the excess reserves that certain banks have chosen to hold for a prolonged period would be replaced by a highly liquid instrument that can be used to mobilize funding at the ECB or in markets, by those banks or by others. Liquidity management for nonbanks would be facilitated. Hence, at worst, any tightening effect would be minor and could be offset. More likely is that having a stock of E-bills outstanding would ease general financing conditions.

Introducing E-bills would not distract from the ECB’s chosen approach of focusing on marginal policy rates rather than the composition of its liabilities (BIS, 2019, provides a clear exposition of this approach). In October 2019 the ECB introduced tiered remuneration of banks’ deposits: required reserves and a part of banks’ excess reserves have been remunerated at a zero rate, and additional excess reserves and funds at the deposit facility have been remunerated at a rate of -50 basis points. The total cost to banks of the excess reserve holdings is less than if the whole earned -50 basis points, but the marginal cost remains. If E-bills were introduced, the zero return component of excess reserves could be reduced, and the ECB would control the stock of E-bills outstanding on an on-going basis, so as to maintain the -50 basis point marginal cost of excess reserves. Hence, the transmission mechanism acting through costly excess reserves would be preserved.

Issuing E-bills as proposed could even increase the flexibility with which QE is implemented by creating a large stock of readily repurchase-able securities. Currently, the Eurosystem purchases of securities are split across eligible euro area jurisdictions according to the ECB’s “capital key,” and within each jurisdiction securities are purchased roughly according to the nominal amount outstanding. Also, the Eurosystem avoids holding more than one third of any one security issue.

³⁴ See Nyawata (2012).

Should the Eurosystem decide to increase purchases and correspondingly banks' excess reserves by a large amount, it may become difficult to find a suitably diverse bonds in a short period. Were there over €1 trillion in E-bills outstanding, large-scale repurchases could begin immediately with no concern over the capital key or undue interference in the markets for individual securities. Any desired rebalancing towards longer term bonds could then be implemented at a measured pace. At the other end of the process, E-bills could be used to unwind QE smoothly and flexibly: the Eurosystem could hold large-issue bonds to maturity and not trade them in the market at a possibly inopportune moment. Instead it would vary its net E-bill position so as to achieve the desired path for its overall balance sheet, smoothly and without step changes.³⁵

Related proposals

Reportedly, in April, 2009 the ECB Governing Council discussed the possibility of reintroducing ECB debt certificates as a further instrument for monetary policy implementation.³⁶ The ECB and NCBs developed a conceptual model and worked out the technical aspects. At that time, it was concluded that the less costly model would have the ECB operate the electronic register, but rely on the existing national infrastructures—using national CSDs—for issuance. That decentralized approach would have required at least daily reconciliation among 23 national CSDs and thus not have reduced fragmentation, but it was favored by NCBs because it is in line with the decentralized approach to monetary policy implementation. One proposed alternative was to issue the debt instrument via the two international CSDs (namely, Euroclear Bank and Clearstream Luxembourg), but concerns were raised by small NCBs relating to the principle of a level playing field and the settlement in commercial bank money. While the necessary mechanisms and procedures were put in place, issuance of debt certificates was not resumed, mainly, it seems, due to political consideration and concern over potential competition with debt instruments issued by national authorities. Moreover, some NCBs saw little or no benefit in issuing ECB debt certificates, as opposed to collecting fixed term deposits, as an instrument of liquidity absorption. These discussions do not seem to have been informed by the current concept of ECB monetary policy implementation, under which the marginal return on excess reserves is more important than the quantity and fixed term deposits play a relatively minor role.

A few commentators (Kaminska, 2012; Philippon and Hellwig, 2011) had recommended the issue of ECB debt securities at the time of the euro crisis or shortly thereafter, but the proposals do not seem to have been worked out in detail. Kalevras (2012) proposes that the ECB issue one-month certificates backed by the staff-monitored program (SMP) assets that it had acquired, which he envisaged working rather like a securities lending program.

Boonstra (2019) argues for the issue of ECB bills and bonds in a full range of maturities, in order to increase the supply of euro area safe assets and to establish a baseline yield curve. He points

³⁵ Already Bini Smaghi (2009) makes this suggestion. Stella (2015) makes a comparable proposal for the use of bills to manage the balance sheet of the Federal Reserve.

³⁶ The author was unable to find an official record of these deliberations. Information in this paragraph is based on informal communication with some of those involved.

out that banks' excess reserves are large in absolute terms, and make up much of Eurosystem liabilities, so they could easily be replaced with marketable securities. His suggestion is to start with short-term bills, and to extend the euro yield curve as liquidity is established and the idea is accepted. However, his suggestion of issuing common sovereign bonds (as opposed to central bank bills) is more ambitious than what is considered here, notably in its implications for risk sharing. Moreover, issuance in many maturities risks not achieving "critical mass" at many points along the curve (in terms of stocks outstanding or regular issuance), and could adversely affect sovereign debt management. His proposal is relatively high-level and does not address many of the practical questions that may arise.

Gabor (2018) emphasizes the mandate and responsibility of "the ECB to assume responsibility for the supply of EMU safe assets, single and national." She suggests that introducing ECB bills may be on the "the path of least [political] resistance" to creating a single, common safe asset. However, she does not elaborate on the mechanism.

Greenwood et al. (2018) argue in the US context that the Fed should ensure an ample supply of public sector STSI in order to "crowd out" some private sector short-term financing instruments, which are potentially destabilizing. The Fed STSI would take the form of reverse repos, which (like E-bills but unlike central bank deposits) have the advantage of being available to both banks and nonbanks. They explain how preserving a large balance sheet even when the need for QE ends and interest rate rise well above the zero lower bound would allow the Fed to fulfill this function without impeding monetary policy implementation.

The most thorough proposal in this area is that of an ESRB High Level Task Force, which advanced the notion of creating sovereign bond-backed securities (SBBSs) (ESRB, 2018).³⁷ These structured products would be tranches of mutual fund(s) of European sovereign assets, with a senior tranche designed to earn a very high credit rating; in addition a mezzanine tranche and a riskier junior tranche are envisaged. In effect, SBBSs would be a special sort of collateralized debt obligation, but the scheme is meant to achieve both diversification and de-risking. Market discipline would be maintained, mainly by leaving countries to borrow directly to finance debt above some ceiling. Thus, the aims include supplying a safe euro asset; reducing banks exposure to their respective sovereigns; and allowing all euro area countries to borrow at low and stable rates. It is emphasized that (a) "Reserve currencies with deep and liquid markets for government debt are attractive to global investors," and the euro area is not benefiting as much as it could; (b) "Further steps towards a capital markets union could be facilitated by an area-wide low-risk asset in sufficiently abundant supply that serves as a benchmark for asset pricing"; and (c) "Financial market participants need low-risk assets to collateralise transaction [and] an area-wide low-risk asset could relieve [related] tension" (ESRB, op. cit., p. 8).³⁸

³⁷ Brunnermeier et al., (2011), (2016) and (2017) explain the preceding concept of European Safe Bonds ("ESBies").

³⁸ The following section of the report compared proposed options for low-risk assets, but does not consider central bank securities.

The SBBS proposal generated considerable debate, with disinterested commentators being generally favorable but seeing some concerns, not least during the transition (Tonveronachi, 2018; Zettelmeyer and Leandro, 2018). Besides requiring regulatory changes to grant the tranches the same treatment as sovereign bonds with the respective rating, the proposal assumes some means to incentivize private institutions to bundle and resell the bonds, in what is meant to be a very low-margin business. Beyond the transition, some commentators were worried about how the market for these relatively complex structured products would function during stress periods. Furthermore, if SBBSs were issued on a large scale, the primary market for government securities would be affected in ways that are hard to predict; possibly some sovereigns whose bonds are over-represented in worse tranches might find it more difficult to generate demand and maintain a diverse, stable investor base.

The European League of Cooperation suggested the establishment of a Temporary Eurobill Fund (TEF), which would issue common euro securities and share risks at short maturities, but leave long term bond markets alone (Bishop 2012, 2013, and 2018). The objectives are broadly similar to those of the SBBS proposal, but the TEF is more ambitious in some regards, and less so in others. The Fund would take over all sovereign borrowing for maturities up to 2 years; if the initiative is successful, the Fund would buy in outstanding bonds once their residual maturity fell to two years, financed by issuing its own bills (aimed in part at retail investors). Governance of the TEF is modeled on that of the ESM, which would also provide a backstop. Access to TEF financing would be restricted to governments that meet certain criteria for fiscal probity, subject to oversight by national governments. Extra funding requirements would have to be met in the longer-term bond markets, where issues would be junior to the TEF and thus likely carry a significant risk premium.

Debate on the TEF is on-going. Establishing it would require the expenditure of "political capital." Some may question whether the fiscal discipline mechanism, which would be in the hands of national governments, would be rigorous and even-handed enough. This concern applies *ex ante*, at the stage of approval of borrowing plans, and *ex post*, should a major country have an unexpectedly large borrowing need. Exactly because "decisions not to buy-in bonds below a chosen maturity would send a message of concern," the authorities may be unwilling to exercise this power in the case of major countries, or in case of wide-spread stress.

Tonveronachi (2014) and (2018) favors the exchange of sovereign for ECB bonds. This is a radical approach, designed in large part to mutualize risks. Therefore, the political agreement to move ahead may be hard to achieve, and would rely on widespread and strong confidence that fiscal governance mechanisms will be effective throughout the euro area. The proposed mechanism would also be risky to phase in, as a half-way stage when some bonds have been exchanged and others not may expose countries to funding risks.

There is a natural reluctance to try a radically new approach in something as important as government debt markets, where ensuring continuity of funding is the highest priority and where mis-steps can increase funding costs by large amounts. Furthermore, there may concern that the behavior of novel products in stress situations may be unpredictable. Also, member states are

perhaps wary of instituting what might amount to a form of risk-sharing or loss of national discretion, especially indeed if its functioning during stress periods is hard to predict.

Issuing E-bills would be dramatic, because large sums are involved, but would be fundamentally less radical. These are straightforward, short-term instruments that are very close substitutes for, and indeed partly replace, high-powered money. Even if an individual E-bill tender failed, the effect would be to leave more excess deposits at the ECB, which would not be a problematic event. In stormy situations, a large stock of E-bills is likely to act as stabilizing ballast, whereas tranching bonds built out of national bonds may work as destabilizing superstructure. Indeed, the model presented in Appendix II suggests that issuing additional risk-free securities is more effective in stabilizing risk premia than replacing some risky securities with risk-free securities, mainly because extra risk-free securities tempers shifts in demand out of the entire sovereign bond asset class when perceived risk increases.

The limited ambition of this proposal is part of its appeal. It is focused on expanding the supply of risk-free, short term, liquid assets that are helpful for market functioning. It thus offers a well-targeted means to address a widely-acknowledged set of issues (summarized in the quotes given above from the ESRB SBBS report). This is not an attempt to establish a complete risk-free euro yield curve.³⁹ The impact on sovereign funding and debt management would be small and possibly positive; there would be no direct effect on the vast majority of government financing which takes the form of bonds. The proposal does not address the issues of risk sharing across euro area sovereigns. The so-called bank-sovereign nexus would remain except insofar as banks would have less incentive to hold sovereign securities as Level 1 LCR assets or to serve as “special” assets for repos, etc.

The issuance of E-bills would complement, rather than compete with other proposals to issue euro area assets, such as SBBSs.⁴⁰ Those proposals focus on longer-term, government securities. Having a large stock of E-bills outstanding may increase the acceptability of euro area (quasi-) sovereign assets, and facilitate the introduction of hedging instruments for the management of risk associated with those longer-term securities, but does not require their issuance.⁴¹

Possible objections

The proposal to issue E-bills may nonetheless run into complications or resistance for various reasons.

First, it may turn out that there is simply little demand for E-bills from either banks or non-banks. If so, the lack of demand should be discoverable during consultations prior to launch, the experiment could be terminated.

³⁹ As mentioned above, there already is much of a “safe” euro yield curve, based on the yields of bonds issued by the highest rated euro area sovereigns, and by supranational agencies such as the ESM.

⁴⁰ The TEF proposal focused on shorter maturities, but could be adjusted to accommodate E-bills.

⁴¹ A commonly recommended way to develop a securities market is to introduce central bank bills and then later short-term government paper, after which maturities can be lengthened gradually.

Issuing E-bills may be seen as cementing the expansion in the central bank balance sheet as a consequence of the global crisis, and some may prefer to emphasize the possibility of normalization and scaling back both the assets and the liabilities of the central bank. Indeed, the development of the euro ecosystem would create a lobby to maintain substantial issuance of E-bills. However, under the proposal, excess reserves would remain very large. Therefore, it would be easy to scale back excess reserves, and somewhat slow E-bill issuance, to match an eventual substantial rundown in holdings of government securities on the asset side, while maintaining a "critical mass" of E-bills outstanding. The Eurosystem could supplement the supply of E-bills by using them as one leg of liquidity-draining repos if its balance sheet ever returns to something like pre-crisis size. Thus, issuing these bills would not hinder or discourage the eventual disposal of securities bought as part of QE. Rather, as mentioned above, their availability might facilitate the orderly unwinding of the Eurosystem's large position in long-term bonds. In any case, at the time of writing it appears that the Eurosystem balance sheet will be further expanded massively in response to the current extraordinary economic shock, and a contraction to pre-crisis levels postponed to the indefinite future.

Some country authorities may see E-bills as a threat to the status of their national government securities as quasi-safe haven assets, even though E-bills would occupy a market segment deemed of minor relevance by the debt managers of highly-rated European countries. As recognized in the model presented in Appendix I, scarcity of a true liquid STSI can reduce the yield on some asset that is relatively less risky than the other risky assets. However, both the magnitude of the effect and the value of this status are questionable. The model shows that the properties that make a security a close substitute for a safe instrument imply that its price sensitivity should not be much affected by expansion in the supply of the safe instrument. There is little reason to believe that the yield on very highly-rated bonds would diverge much from that of E-bills (except for term premium effects). Moreover, demand for all euro sovereign securities may be increased (and yields reduced) if the issuance of E-bills succeeds in diversifying and expanding demand for the euro and stabilizing euro risk premia.

Another possibility is that (national) central banks are reluctant to give up having large deposit liabilities vis-à-vis (their own) commercial banks. They may see some advantage in knowing which banks have large excess reserves.⁴² Yet (prudential) authorities would know banks' holdings of E-bills, as part of reporting on liquidity positions, which would be a close substitute. Alternately, they may be reluctant to see an expansion of the ECB balance sheet within the Eurosystem and its acquisition of claims on NCBs, replacing the deposit claims of MFIs (see Appendix II). This intra-Eurosystem liability would imply that, in the event of the break-up of the euro area, in aggregate NCBs would be left with an obligation towards the ECB (and indirectly towards E-bill holders), rather than towards their commercial banks qua depositors. The NCBs may be more comfortable having a liability towards their respective commercial banks rather than E-bill holders from all over the world. This concern has a theoretical validity, but basing Eurosystem policy on the possibility of its own demise would demand a restructuring in many areas. Moreover, the concern

⁴² Such an attitude would need to be taken into account in plans for the future normalization of the Eurosystem balance sheet; it implies that central banks wish to keep a large balance sheet indefinitely.

applies only to NCBs that would end up with larger net intra-Eurosystem liabilities if E-bills were issued; it does not apply to those, most notably the Deutsche Bundesbank, whose existing large positive net claim would be reduced.

Perhaps more fundamentally, the authorities and politicians may be reluctant to see the internationalization of the euro; they may prefer to keep the euro mainly as a money for euro area countries and non-financial transactions in the region, rather than promoting its widespread use as an STSI. Just as in the past the authorities of Japan and Germany were reluctant to see the yen or the deutsche mark, respectively, becoming reserve currencies, some authorities may today prefer to leave the dollar as the dominant currency in global financial markets. This reluctance seems to be based on macro-monetary concerns: first, stronger international demand may imply less control over the stock of (reserve) money, which is worrying if one still has a quantity-based rather than an interest-rate-based conception of monetary policy. Second, stronger demand for the euro (in the euro area and outside) implies a reduction in Europe's net foreign asset position, and a corresponding period of real appreciation. Third, a more widespread perception of the euro as a safe haven currency implies that it will tend to appreciate in times of global stress; depreciation may be preferred as supporting export industries. In effect, and in opposition to the concerns described above, some may prefer that the euro and their sovereign debt not be viewed as offering low risk in all circumstances. These concerns, however, may exaggerate the importance of this one policy action, which will not in itself dislodge the dollar from its preeminent position.

Whether the European authorities want to expand demand for the euro is in part a wider political question, with implications for the international monetary system, which goes beyond the scope of this paper. But if the euro is to remain just a regional currency, then attention should focus not on promoting the euro but on containing risks arise from the continued dominance of the US dollar, and possible turmoil arising from competition between the dollar and other currencies, be it the remimbi or some private cryptocurrency. The argument put forward here, however, is that Europe can be the agent determining its own monetary regime and its interactions with the international monetary system, rather than merely reacting to external developments.

Summary and conclusions

It has been argued that there would be substantial benefits in issuing a large quantity of short-term ECB debt certificates. The ECB could in effect replace a portion of Eurosystem liabilities towards banks, which are now in the form of deposits, with negotiable short-term instruments. These risk-free assets are likely to be more useful to many market participants than are central bank deposits held exclusively by commercial banks, thus expanding and diversifying demand for the Euro. Having a large outstanding stock of E-bills (comparable to US "T-bills") may help improve the functioning of financial markets and especially euro funding markets, notably during stress periods. Therefore, it would make monetary policy transmission more robust, while being compatible with current instruments after modest adjustments. The availability of E-bills would reduce bank leverage, and support the move towards a less bank-centric financial system and the realization of the capital market union.

Achieving the full benefit would require that the E-bills be designed in a way that ensures their appeal to a wide investor base and promotes their liquidity. However, issuing E-bills would be technically, legally, and institutionally straightforward, and has been done before (albeit in small quantities). The net cost to the Eurosystem should be minimal.

The proposed action's narrow targeting should make it widely acceptable. It would not in itself overturn the leading role of the US dollar in global markets, nor would it solve quasi-fiscal problems or fundamentally reduce bank-sovereign vulnerabilities in the euro area. National sovereign debt management would not be disrupted. Nonetheless, having a market for E-bills may facilitate the introduction of common European bonds, should the European authorities decide to do so. In any case, launching E-bills would represent a strong commitment to the European monetary, banking, and capital market union. It is an initiative that is do-able, have value in itself, and send an unambiguous signal of Europe's solidarity and innovativeness.

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A Model of Safe Assets as “Ballast”

Investors have total assets A , of which a proportion κ is allocated to euro sovereign fixed-income securities. For convenience, it is assumed that those securities are single-period bills. The euro sovereign fixed-income portfolio is made up of E risk-free securities that offer a return i , and F risky securities that offer an excess return r . Investors demand for the risky asset is defined as a share ω of the allocation to euro sovereign fixed-income securities. The share depends on the excess return and risk aversion captured by $\rho > 1$; the parameter ρ may reflect sentiment, real or perceived probability of default for the risky security, and the distribution of possible loss given default. Thus, in equilibrium

$$F = \omega \left(\frac{r}{\rho} \right) \kappa A, \quad \omega' > 0. \quad (1)$$

Similarly,

$$E = [1 - \omega \left(\frac{r}{\rho} \right)] \kappa A. \quad (2)$$

The overall allocation κ to the euro sovereign fixed-income portfolio is assumed to depend on the safe return and the risk-adjusted excess return on the risky asset, weighted by the latter's portfolio share. Therefore,

$$E + F = \kappa \left(i + \omega \left(\frac{r}{\rho} \right) \left[\frac{r}{\rho} \right] \right) A, \quad \kappa' > 0. \quad (3)$$

The excess return is sensitive to risk aversion: if risk aversion ρ increases, asset F has to offer a higher return relative to the safe asset for the given stock to be willingly held. From equation (1),

$$0 = \omega' \left[\frac{dr}{\rho} - \frac{rd\rho}{\rho^2} \right] \kappa A + \omega \kappa' \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \left[\frac{dr}{\rho} - \frac{rd\rho}{\rho^2} \right] \right] A, \quad (4)$$

but from equation (3)

$$0 = \kappa' \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \left[\frac{dr}{\rho} - \frac{rd\rho}{\rho^2} \right] \right] A.$$

Hence,

$$0 = \omega' \left[\frac{dr}{\rho} - \frac{rd\rho}{\rho^2} \right] \kappa A,$$

giving the sensitivity of the return premium to risk aversion as

$$\frac{dr}{d\rho} = \frac{r}{\rho} > 0. \quad (5)$$

The safe rate i is unaffected.

It will now be shown that having a larger stock of the safe asset reduces the sensitivity of the excess returns, thereby stabilizing prices in the face of shocks. Differentiating equation (3) gives

$$dE = \kappa' \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \frac{dr}{\rho} \right] A, \quad (6)$$

while from equation (1)

$$0 = \omega' \cdot \left[\frac{dr}{\rho} \right] \kappa A + \omega \kappa' \cdot \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \frac{dr}{\rho} \right] A. \quad (7)$$

Combining (6) and (7) and rearranging yields

$$\frac{dr}{dE} = \frac{-\rho \omega}{\omega' \kappa A} < 0, \quad (8)$$

assuming that the risky asset is in positive net supply. The intuitive result is that a larger supply of the safe asset results in lower excess returns on the other asset.

Also, it is easy to use (6) and (7) to obtain

$$\frac{di}{dE} = \frac{1}{\kappa' A} + \left[\frac{\omega' r}{\rho} + \omega \right] \frac{\omega}{\omega' \kappa A} > 0; \quad (9)$$

the return on E has to increase to attract investment out of non-euro sovereign assets.

Differentiating (5) and using (9) leads to

$$\frac{d^2 r}{d\rho dE} = \frac{-\omega}{\omega' \kappa A} < 0. \quad (10)$$

It follows that the sensitivity of the excess return on the risky asset to risk shocks is lower, the more of the risk-free asset is outstanding. One way to understand the effect is to consider the case where no safe asset is available. Then any shock to risk aversion has to be offset by a large increase in yields to induce investors not to abandon the asset class. At the other extreme, if almost all euro sovereign assets are risk-free, an increase in perceived riskiness or risk aversion has scant effect on the overall portfolio properties and so excess returns are bid up very little.

One extension is to consider issuing risk-free securities in exchange for risky securities, such that $dE = -dF$, rather than issuing new securities (as suggested in this paper). From equation (1) we have,

$$-dE = \omega' \cdot \left[\frac{dr}{\rho} \right] \kappa A + \omega \kappa' \cdot \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \left[\frac{dr}{\rho} \right] \right] A, \quad (11)$$

and from equation (3)

$$0 = \kappa' \cdot \left[di + \left[\frac{\omega' r}{\rho} + \omega \right] \left[\frac{dr}{\rho} \right] \right] A. \quad (12)$$

Hence

$$\frac{dr}{dE} = \frac{-\omega}{\omega' \kappa A} < 0, \quad (13)$$

which, with the absence of ρ in the numerator, is absolutely smaller than before. Hence, $d^2 r / d\rho dE = -\omega / \rho \omega' \kappa A$, which is absolutely smaller than in (10); increasing the stock of safe euro assets is more effective in stabilizing risk premia than replacing some risky assets with safe assets. Equations (6) and (12) imply that

$$\frac{di}{dE} = \left[\frac{\omega' r}{\rho} + \omega \right] \frac{\omega}{\rho \omega' \kappa A} > 0, \quad (14)$$

which is certainly smaller than (9); there is no need to attract extra investment into the euro sovereign asset portfolio.

Another worthwhile extension is to include two risky assets, one of which is less prone to swings in risk aversion. Let the other asset be available in quantity G , with an excess return of r_G (an analogous subscript F will be applied to variables related to the first risky asset). The portfolio share dedicated to G depends on its own excess return, adjusted by the risk aversion parameter tempered by a coefficient γ , $\gamma \in (0, 1)$. Furthermore, F and G are substitutes. So

$$\begin{aligned} F &= \omega_F \left(r_F / \rho, r_G / \rho \gamma \right) \kappa A \\ G &= \omega_G \left(r_G / \rho \gamma, r_F / \rho \right) \kappa A, \end{aligned} \quad (15)$$

and

$$E + F + G = \kappa \left(i + \omega_F \left[r_F / \rho \right] + \omega_G \left[r_G / \rho \gamma \right] \right) A. \quad (16)$$

With this specification, it can be shown that the sensitivity of excess returns to risk aversion remains algebraically unchanged except for the introduction of the parameter γ .⁴³

$$\frac{dr_F}{d\rho} = \frac{r_F}{\rho}, \quad \frac{dr_G}{d\rho} = \frac{\gamma r_G}{\rho}. \quad (17)$$

Unsurprisingly, the excess yield on the less risk-exposed asset varies proportionally less than that on the asset viewed as riskier when risk aversion fluctuates. It can also be shown that $dr_j/dE < 0$, $j = F, G$, as before, assuming that the two assets are substitutes (i.e., $\partial \omega_j / \partial r_k < 0$, $j, k = F, G$) and reverting to the case where E is increased without reducing the outstanding stocks of other euro fixed income securities. These results suggest that an increased stock of the safe instrument typically dampens fluctuations in the excess returns of all risky assets.

The model as it stands does not exclude the possibility that r_G is negative. In effect, asset G could become the safe haven and see an increase in demand (making the excess return more negative) during stress periods, if either γ or E is sufficiently small. However, the elasticity is relatively low because of the presence of the γ parameter.

The model is open to empirical testing. For example, one could investigate whether an asset class with a relatively high share of low-risk instruments displays relatively low variation in risk premia within that class when riskiness and risk aversion vary, as suggested by equation (18). Also equation (19) is testable. However, identifying changes in the behavior of external risk factors and controlling for other differences (e.g., in applicable legal regimes) may be challenging.

⁴³ This result is due to the multiplicative specification of risk aversion. It would not hold under a more general specification of $\omega = \omega(r_i, r_j, \rho)$.

Stylized Balance Sheets

Current 1/		Illustration of proposal's impact	
Assets		Liabilities	
Consolidated Eurosystem			
Claims on banks	625	Bank deposits	1,800
Bonds	2,800		
Other	1,250	Other	2,575
Total	4.675	Total	4.675
ECB			
Bonds	250		
		Claims of NCBs	275
Other	200	Other	175
Total	450	Total	450
NCBs			
Claims on banks	625	Bank deposits	1,800
Bonds	2,600		
Claims on ECB	275		
Other	700	Other	2,400
Total	4,200	Total	4,200
EA banks			
Deposits at NCBs	1,800	Borrowing from NCBs	625
		EA customer deposits	13,250
Government bonds	3,600		
Other	23,600	Other	15,125
Total	29,000	Total	29,000
Others			
Deposits with EA banks	13,250		
Consolidated Eurosystem			
Claims on banks	625	Bank deposits	500
Bonds	2,800	E-bills	1,300
Other	1,250	Other	2,575
Total	4.675	Total	4.675
ECB			
Bonds	250	E-bills	1,300
Claims on NCBs	1,300	Claims of NCBs	275
Other	200	Other	175
Total	1,750	Total	1,750
NCBs			
Claims on banks	625	Bank deposits	500
Bonds	2,600		
Claims on ECB	275	Claims of ECB	1,300
Other	700	Other	2,400
Total	4,200	Total	4,200
EA banks			
Deposits at NCBs	500	Borrowing from NCBs	625
		Customer deposits	12,250
Government bonds	3,450		
E-bills	300		
Other	23,750	Other	15,125
Total	28,000	Total	28,000
Others			
Deposits with EA banks	12,250		
E-bills	1,000		

Source: ECB Data Warehouse, and own calculations.
1/ Based on end-2019 reported balance sheets.