The European Safe Asset Debate

Malcolm Kemp, 30 September 2019

Summary

This paper explores reasons why some policymakers and researchers propose creating additional European (Eurozone) safe assets and why others think that this may be challenging. By 'safe' assets we mean ones that are as free from credit risk as possible, potentially even more creditworthy than any current (Eurozone) sovereign. A case can be made on financial stability grounds for such issuance, e.g. because it could assist in the mitigation of risks present in the maturity transformation occurring within the financial system. Less clear is whether there is the political will to support large scale issuance of such debt by central EU bodies. Nor is it clear how large might be robustly quantifiable economic benefits not linked to financial stability or broader political agendas (such as the EU's Banking Union or Capital Markets Union). Research has therefore tended to focus on other approaches (potentially including private sector solutions) that could be used to manufacture such assets, including the use of tranching. However, these approaches would likely suffer from additional costs and a complexity premium which may limit the enthusiasm of third-party investors to support such approaches.

1. Introduction

In a financial context, the term 'European Safe Asset' is generally taken to mean a Euro-denominated fixed interest financial instrument that is as 'safe' as possible, i.e. as free of credit risk as possible.

As with other fixed interest instruments, any such assets can be differentiated by currency, term to maturity and, in principle, by coupon payments received in the interim. Usually, the debate abstracts away any subtleties regarding coupon payments (which could be negative or positive) and focuses on zero-coupon bonds of different terms for a given currency, accepting that in practice some coupon element may be introduced into any given instrument.

Starting from a perspective that that is not European specific, the inherent (economic) appeal of assisting in the manufacture of 'safe assets' is that many financial transactions involve a combination of:

(1) collateralisation (to protect the different parties involved against the risk of default of the other side to the transaction);
(2) shifting exposures between different points along the (interest rate) yield curve (i.e. 'maturity transformation')

These transactions can be facilitated if the collateral transferred between the parties is as credit risk-free and as liquid as possible and if there is a deep, liquid and credit-risk free way of doing so across as broad a range of terms as possible. For example, transaction pricing may be simplified and the frictional costs of shifting savings and investment around the (interest rate) term structure may be minimised. On the assumption that efficiently functioning capital markets contribute to broader societal gain, facilitation of this process should be socially desirable.

Alternatively, we may note that usage for such purposes and hence potential for further issuance of such instruments will tend to coalesce around the issuer(s) whose instruments are most liquid and

most credit risk free. These instruments will then be the ones considered most desirable by market participants and hence the ones they expect other market participants to think so too. The added demand for such instruments should therefore reduce the borrowing costs paid by such an issuer. This is a modern version of 'seigniorage'. Such issuers are nearly always nowadays governmental bodies given the scale and credit status typically ascribed to such bodies. Even if these contributing functional elements of financial markets do not by themselves contribute much to broader societal gain, it can be argued that governments and hence broader society can benefit from the seigniorage received by issuing 'safe' assets, to capitalise on the demand for such assets from financial markets.

At a global level, reserve currencies tend to exhibit these characteristics and historically first Sterling and more recently the US Dollar have benefited from such a status. Most economists view these effects as having reduced the cost to the US Government of financing its debt.

2. The European dimension

In the light of the Eurozone Sovereign Debt Crisis of c. 2010 – 2014, commentators such as Strauch (2018) stress the added financial resilience that issuance of such instruments might bring. Particularly appealing is if their development were combined with other policy measures designed to mitigate the so-called 'sovereign-bank feedback loop'. This feedback loop is a consequence of banks' tendency to hold the debt of their own local sovereign. It encourages governments to rescue their banking systems during a banking crisis (to protect creditors by preventing bank runs). However, such support is typically needed when governments can least afford it, putting downward pressure on the value of local sovereign bonds if a stress materialises. This in turn weakens the banking system, creating a downward spiral.

Other reasons why some commentators propose creating 'European' safe assets and why other commentators think that creating such assets may be impractical include ones set out below. The reasons (and possible construction mechanisms) interact with wider political debates. Most of the complexities of the European safe assets debate arise because of the specifics of the European situation. These include:

(1) The EU consists of a set of member states most but not all of which belong to the Eurozone. Scope to issue bonds guaranteed by the EU itself is significantly circumscribed by treaties that underpin the EU.
(2) For member states that issue their own currency, the member state's national debt naturally tends to be the relevant currency-specific 'safe' asset (perhaps with some complications if the relevant stock of national debt is small or does not span a sufficient spread of durations)
(3) However, for Eurozone member states (most EU member states), the position is less clear. Different member states are ascribed different credit statuses by the market and have different levels of debt issuance. Some (non-EU) supranationals, EU local governments or (possibly) very large private sector issuers may be better placed than some smaller EU member states to capture the seigniorage benefits ascribable to issuance of what the market views as 'safe' assets.
(4) At present, therefore, the market's view of what constitutes Euro-denominated 'safe assets' tends to coalesce around the most creditworthy member states (currently principally Germany, given its size, but to a lesser extent some other typically northern European member states). However, by volume of issuance most EU government debt is not issued by such member states.
(5) That such a differentiation between member states exists (although not the exact member states involved or the sizes of the differentials) is to be expected. The market can always be expected to differentiate between member states in terms of creditworthiness, given the

different economic positions of different member states. With a large enough number of member states (none of which is dominant in size), the ones deemed by the market to be most creditworthy can be expected typically to form only a relatively modest fraction of the overall Eurozone economy. Creditworthiness is probably also inversely correlated with debt issuance. All other things being equal, a lower amount of debt outstanding reduces the likelihood of the issuer defaulting. Potential differences in the creditworthiness ascribed to different member states was highlighted during the Eurozone Sovereign Debt Crisis. These included market concerns that the Eurozone itself might fall apart. Whilst spread differentials on government debt issued by different member states have declined significantly since then, they have not ceased to exist.

The combination of these factors raises the concern that there may be a shortage of Eurozone 'safe' assets relative to what might be ideal to further financial stability and the goal of efficiently functioning capital markets. In the context of the EU, the latter also links in with the broader EU Banking Union and Capital Markets Union agendas.

Leandro (2019) presents the main perceived goals and benefits of promoting further development of European safe assets. A summary of the potential benefits he appears to believe could be realised by further development of European safe assets is set out in Table 1. Some of these goals and benefits are specific to the European dimension and some are more generic.

Table 1: What problems could a European safe asset address?

Policy Area	**Potential benefits**
Financial stability	***Bank-sovereign nexus***: ensure sufficient supply of safe assets in Europe, combine diversification with de-risking ***Flights-to-safety***: de-link safe asset from any specific sovereign, preserve monetary policy transmission in crises ***Fear of redenomination***: reduce risk from banking-sector events outside government's control
Economic Growth	***Financing***: appealing investment proposition, allowing smaller member states access to international investors ***Mitigate distortions in financing costs***: de-link financing costs for rest of economy from relevant costs for sovereigns, new European anchor for corporate credit ratings, reduce cost dispersions for similar firms across member states ***Banking Union***: reduce incentives for ring-fencing of liquidity, make geographically diversified banks better able to absorb shocks, more homogeneous access and transmission of monetary policy ***Capital Markets Union & risk-sharing***: create a genuine euro area yield curve and pricing reference, based on common savings (banking) market
Financial sovereignty	***Anchor international role of euro***: provide safe store of value, reinforce governance and credibility of EMU architecture ***Complement Banking Union and Capital Markets Union***: greater capability to exploit economies of scale and deliver investment needed for innovation, more competitive and resilient globally

Source: Adapted from Leandro (2019)

However, addressing the potential shortage, if there is a shortage, faces challenges that include:

(a) Specific issuance of debt by a central EU body would likely, if issued in enough quantity, supersede any existing Euro safe assets. However, it would likely require a political step beyond what most member states currently seem to want.
(b) Merely combining different sovereigns' debts into (non-tranched) pools does not alter the underlying economics set out above and therefore is unlikely to assist. Liquidity is still likely to coalesce around the debt of the most creditworthy EU sovereigns (particularly in times of stress), provided there is enough such debt in existence.

Therefore, a core strand of the debate is whether some form of tranched structure can assist, in which 'safety' is introduced by arranging somewhere within the overall framework for some claims to be more senior than others.

The most widely explored type of tranched structure for this purpose involves a concept that was previously called an 'ESBie' but is now more commonly referred to as a Sovereign Bond-Backed Security (SBBS), see ESRB (2018). Such a tranched structure (which might be privately or publicly issued) invests in debt issued by different sovereigns. The structure then funds these purchases by itself issuing paper with different priorities in the event of default of some of the debt in which it is invested. Losses from such defaults are borne first by the junior tranches of such structures and only when junior debtholders have been wiped out are losses borne by senior tranches. The junior debtholders are subordinate in priority to the senior debtholders in the event of the structure defaulting. The senior tranche holders are therefore investing in a more creditworthy instrument than the junior tranche holders, in the same sort of manner as applies to different tranches of debt issued by collateralised debt obligations. Suitably structured, the senior tranche holders might be investing in paper that is more creditworthy than any of the debt in which the structure is invested, i.e. in an asset that is potentially even more 'safe' than the safest currently available government debt.

Alongside SBBSs, three other ways of providing additional safe assets (without the debt being jointly and severally guaranteed by individual member states) are explored in Leandro and Zettelmeyer (2019) as set out below (and explored further in Appendix A). The first two arguably involve elements of tranching or at least subordination of some claims to others.

- *National tranching*, in which member states issue more than one type of debt accorded different seniority (i.e. priority) in the event of the sovereign defaulting
- *E-bonds*, in which a (typically public) intermediary that purchases the relevant member state's sovereign debt is accorded priority (i.e. preferred creditor status) in the event of that member state defaulting
- *Debt issued by a Eurozone-wide budget (or Sovereign Wealth Fund)*, with the debt having first call on the assets or revenue streams involved

Less focused on in the debate, but perhaps no less important, is to unpick the different benefits that might accrue from greater availability of 'safe' assets. We note above that the seigniorage demand that relates to 'safe assets' arises partly from facilitating collateralisation and partly from facilitating maturity transformation. Of course, the two are not unconnected. Cash, particularly the sorts of cash most used in financial transactions, can be viewed as effectively the instrument that is at the ultra-short end of the yield curve. However, there are practical differences between the two when viewed through the lenses given above. The Eurozone arguably already has, in effect, a central issuing authority for cash (or at least a central way of coordinating such issuance), i.e. the European Central Bank acting alongside relevant member state central banks.

Much of the European safe asset debate therefore revolves around the maturity transformation contribution to the picture and/or to how the euro / European Central Bank (ECB) might be expected to function in the event of an imminent default by a Eurozone sovereign. Maturity transformation is most commonly associated with banking activity. The debate therefore interacts strongly with debates on how Eurozone banks are regulated (including what happens if they run into difficulties) and with systemic risks arising from the banking sector.

3. Tranched structures

Whilst the development of tranched structures such as SBBS may seem theoretically appealing, it faces some some practical challenges:

(1) If the idea is such a good one, we might ask why it has not already developed[1]. An important issue that has been noted by some commentators is the exemption applied to Eurozone local sovereign debt in the calculation of EU banks' (Pillar 1) capital requirements. Currently, the senior paper of a (privately issued) tranched structure, even one that only invested in Eurozone sovereign debt would typically not benefit from the same exemption. This makes it unappealing for banks to hold such paper. Any way forward involving such structures would likely need a change to such rules in order to take off.
(2) Academics like the idea of eliminating such capital exemptions, because they should reduce the sovereign-banking feedback loop referred to above. However, sovereigns who think that they might in future potentially benefit from support from their local banking sector may be less enthusiastic to promote such a development[2].
(3) Superimposed on this picture is the potential transfer of resources between member states that such structures might introduce. If the most creditworthy sovereigns currently benefit from the lion's share of any corresponding seigniorage then they may not be keen to cede this to other member states. Pursuing this line of reasoning then raises the potentially thorny question of the most appropriate way of identifying how much of any specific member state's debt should be included in such a structure.

Linked to (3) are questions about the legal framework within which any such structure might operate, including how profits or losses might be apportioned.

If a private sector solution is targeted, the facilitator would presumably want remuneration for assisting in the development of such a structure. What would then happen if multiple players created competing structures? Would liquidity fragment, reducing the benefits accruing from the

[1] Conversely, it might be argued that to some extent bonds issued by, say, the European Stability Mechanism (ESM) are E-bond-like 'safe' assets so a nascent market may have already developed. In the EU, ESM euro-denominated bonds are not currently penalised in terms of bank capital requirements relative to (member state local currency denominated) sovereign debt.

[2] Possible counterarguments in favour of promoting more linkage between an individual sovereign and its own local banking system seem rarely if ever to be aired by EU policymakers. This may be partly because of the political angles involved. It can, for example, be argued that the rise of Great Britain to great power status two to three centuries ago was facilitated by it having a banking system, centred around the then private Bank of England, which was better than equivalent systems in other countries at channelling finance to central government to support the country's broader political agenda at the time. This was arguably an example of a positive feedback arising from the feedback loop. No asset can be considered absolutely 100% safe from all contingencies (if the set of contingencies being considered is wide enough, e.g. major war, massive natural disaster, …). Part of the safe assets debate therefore relates to views about the best place to locate risks arising from interconnections between sovereigns and banks. Issuance of additional eurozone safe assets (particularly if created in certain ways) may tend to move some of the risks (and possible rewards) away from individual member states towards central EU / Eurozone institutions.

greater supply of safe assets? What would happen if there was an operational risk event large enough to wipe out the structurer, e.g. a large fraud? Under what legal jurisdiction would the structure be domiciled (and how would any associated legal risks be handled)? If the Eurozone disintegrated, would the structure need to be unwound and how would this be achieved in the presence of more than one tranche? If, instead, a centralised public sector solution is targeted, what would be its ownership structure? Who would be responsible if it ran into difficulties?

ESRB (2018) and some of the material published alongside it in ESRB working papers include sections that explore some of these issues.

4. Investor perspectives

The practical success of a SBBS-style tranched solution requires enough parties to want to buy the structure's junior debt on terms that are sufficiently attractive to the structure to make the whole process economically sound.

The theory of comparative advantage implies that different investors ought to find different tranches appealing. However, this theory was widely quoted in the run up to the 2007-09 Global Financial Crisis ('GFC') as a reason why different types of paper issued by collateralised debt obligations and other similar tranched structures were sensible investments for different sorts of investors. This is not the most auspicious of precedents based on subsequent experience of such assets during the GFC. Moreover, the theory only arguably applies in modest size. It does not guarantee the existence of enough investors to make much difference to the total supply of European safe assets.

Investors such as pension funds, insurers or even private individuals might find investing in junior tranches appealing provided the price (i.e. yield premium) is sufficiently attractive to them. However, the pricing of junior debt (relative to a corresponding basket of the individual sovereigns' debt held directly) will likely be heavily dependent on political factors and/or on hard to estimate correlations between likelihoods of default of individual member states. These complexities could easily put off many potential mainstream long-term investors, concentrating ownership of these tranches with hedge funds, arbitrageurs and others who might demand higher yield premia than the structure is capable of bearing. The risk of mainstream investors being crowded out from investing in junior tranches is increased if (as at present) the EU is also seeking to encourage the same sorts of mainstream investors to allocate more capital towards sustainable and other long-term investment opportunities.

It is therefore worth analysing in more detail how the different instruments issued by such structures might be viewed by mainstream long-term investors. Points to note here include:

(1) There will be extra structuring costs going down the tranching route, and extra risks (e.g. the legal risks referred to above) for which investors will likely want compensation
(2) Many mainstream long-term investors have liability cash flow matching needs. These often underpin much of their allocation to fixed income investments. For such needs, we might expect a premium to be placed on certainty, suggesting that for this part of their portfolio such investors may prefer investing in senior tranches rather than junior tranches.
(3) Pricing of junior tranches would therefore need to pay close attention to competition from other sorts of debt instrument including corporates (and more generally other available asset categories).

In comparison with other sorts of debt instruments the picture is likely to be mixed:

(a) If there are few or in the limit just one such structure created, the paper might be more liquid than a typical (large) corporate debt instrument but only if investors think that the underlying economics of the structure are sound.
(b) The incentive arrangements applicable to junior tranche investors may not be viewed positively by the market. Such investors would be particularly exposed to the risk of default of individual member states. However, they have a weak commonality of interest with others who might also be exposed to the creditworthiness of the relevant member state. For this route to European safe assets to achieve its desired goals, the investors in the junior tranche will likely need to be spread across many jurisdictions. They will then typically lack the sorts of political levers that might offer other better placed investors scope to mitigate some of the adverse consequences of the member state defaulting. A risk they may perceive themselves as facing is that a member state at risk of defaulting may be incentivised to default in such a way as to disadvantage them the most. They may demand a yield premium to compensate for this perceived risk.
(c) In contrast, when an investor invests in corporate debt, there is often some scope for recovery in the event of default, which may be bolstered by legal protections in the relevant debt issuance documents. For example, there may be some tangible or intangible assets which such investors can access in priority to existing shareholders, or scope for debt-to-equity swaps.
(d) Experience during the Eurozone Sovereign Debt Crisis (c. 2010 – 2014) is informative. It can be argued that the EU addressed this Crisis by progressively transferring the debt of weaker Eurozone sovereigns onto central EU balance sheets. This moved the debt away from players in a weaker negotiating position to ones with a stronger negotiating position and therefore with better 'protections', using the above terminology.

Most of these effects seem likely to inflate the yield premium demanded by the junior tranche investors. For a given mix of senior and junior tranches there is a limit to the amount of yield premium that such a structure can bear before the structure itself becomes uneconomic. The average yield payable on the senior and junior tranches combined cannot exceed the yield the structure receives on the debt it is itself investing in.

Some of these points are implicitly covered in ESRB (2018). Volume I (Main Findings) notes in relation to junior tranches (there called 'junior SBBS') that:

> *"**The attractiveness of junior SBBS depends on clear communication to investors that the euro area policy stance on fiscal discipline will not weaken as a result of SBBS issuance**. Investors should be clear that junior SBBS are not "built to fail" in the sense that they are not intended as a precursor to sovereign debt restructuring. At the same time, junior SBBS would be the first in line to bear losses if such an event were to occur. With the emergence of an SBBS market, authorities would have a responsibility to run sound policies at national level and continue their stability-oriented multilateral surveillance activities, with a readiness to implement ESM programmes where appropriate.*
>
> ***Ultimately, the level of demand for junior SBBS is an empirical question that depends on many factors**, including structural issues (such as regulation) and conjunctural issues (notably perceptions of fiscal and political risks, investors' risk appetites and financial market conditions, which affect yields). SBBS issuance depends on the ability of arranger(s) to fill order books for all securities, including the junior one. The issuance of high-yield debt tends to be procyclical, which might also be the case for junior SBBS. In the absence of orders for junior SBBS, no new SBBS of any kind would be issued; sovereign bonds would therefore be issued in*

primary markets by conventional means. This reflects the fact that SBBS do not entail any built-in promise to offer a stable source of finance for governments during a crisis."

Volume II (Technical Analysis) includes a summary of views expressed by some market participants at a workshop held to explore the tranched concept, e.g.:

"***Market participants emphasised that SBBS must be treated by regulation in a way that is consistent with the treatment of the underlying****. This was seen as necessary by all market participants with whom Task Force members met, as the incentives for creating and buying SBBS would not otherwise exist. Regulatory reform should cover the entire financial system and should not focus only on banks. A dedicated product regulation, which would potentially treat (senior) SBBS like a sovereign bond, was seen by most as an encouraging step forward.*"

"***Some market participants pointed out that they could not see a natural investor base for the first loss piece****. In their view, its risky nature would deter most investors, and there are few market participants whose investment strategy is to trade first loss pieces of securitised sovereign debt. Instead, they envisaged that the product could attract investors who typically deal with other securities with similar risk properties. Examples of such securities include high yield bond funds, structured product investors and emerging market sovereign bond funds. If the SBBS market develops smoothly and investors develop trust in it, an investor base could eventually develop around junior SBBS.*

In addition, market participants agreed that the 30% of subordinated securities should be split into mezzanine and junior components*. This would in their view induce a wider class of investors (especially insurers) to invest in subordinated SBBS (by purchasing mezzanine SBBS). Without sub-tranching, relatively risk-averse investors would most likely be deterred from holding a subordinated security with first-loss characteristics.*"

"***Many market participants voiced the opinion that it would be advantageous if the arranger were a public body****. First, it would help with demand as it would provide assurance to investors that SBBS have the intended risk properties. Second, public sector arrangement would provide greater certainty that the securities would be regularly issued, aiding liquidity. Third, a public body might be more capable of dealing with warehousing costs. Furthermore, if there were multiple private arrangers, the homogeneity of the product could be hampered.*"

Brunnermeier et al. (2016) note the worry that the safety of senior tranches might come at the expense of very risky junior tranches that no investor would want to buy. They assert that this worry is fundamentally misplaced and argue that junior tranches would allow investors to leverage their exposure to sovereign risk more cheaply than by using on-balance sheet leverage to fund a pooled portfolio of sovereign debt. Whilst this is theoretically reasonable, it does not guarantee that investors would be willing to do so in enough size to make the overall effort of launching such tranched structures worthwhile. It also does not address the worry prospective investors may have that the incentive structures applying to the underlying sovereign issues might end up being stacked against the holders of such tranches, see points (b) to (d) above. The comment in ESRB (2018) that the "*attractiveness of junior SBBS depends on clear communication to investors that the euro area policy stance on fiscal discipline will not weaken as a result of SBBS issuance"* might go some way towards addressing this point. However, when viewing the relative merits of the junior versus senior tranches investors will not just focus on the likelihood of default in isolation. They will also be interested in how any consequential losses might apportioned, conditional on a default or near default happening.

Non-SBBS-style tranching approaches have not (yet) been accorded the same level of scrutiny as SBBS, perhaps because of the greater political tensions that might apply to them. We might perhaps in this context note that:

(a) *National tranching* is viewed by commentators such as Leandro and Zettelmeyer (2019) as "just a different way of selling national debt". However, it still requires sale of junior tranches, fragmenting issuance (and therefore potentially also fragmenting liquidity). Purchasers of such junior tranches may again bid up the yield they demand to reflect their reduced commonality of interest with holders of the same sovereign's safer senior tranches of debt. Effectively implementing such tranching from a legal perspective might also be tricky, unless member states were required to issue the different tranches under a non-local legal jurisdiction
(b) *E-bonds* in effect require preferred creditor status to be accorded to specific intermediaries. Such a status is generally assumed to apply to certain governmental bodies like the International Monetary Fund (IMF) or the European Stability Mechanism (ESM). However, Leandro and Zettelmeyer (2019) note that the IMF Articles of Agreement do not mention preferred creditor status, while the preferred creditor status of the ESM is mentioned in the preamble of the ESM treaty, rather than in the treaty itself. They also note that private investors seem so far not to have sought to challenge either status in court. It is possible that this preferred creditor status is in part contingent on such bodies focusing on crisis management and the implicit buy-in from other member states and others that goes alongside such activities. Harder to see is how permanent (non-crisis driven) subordination arrangements might be implemented between different classes of government debt, without the government concerned ceding a level of sovereignty over its own affairs that may be politically unpalatable. If the robustness of the legal position is debatable then investors may again seek a yield premium to protect themselves against such a risk crystallising.

5. Quantifying the benefit of increased safe asset supply

Nearly all the headwinds mentioned above can be thought of as consequences of the additional complexity of a tranched route. If they are too great, an alternative is to revert to the financially simpler (but politically more challenging) option of increasing the supply of safe assets by direct issuance of debt instruments from a central Eurozone body. A hybrid approach could also be explored, e.g. with creation of tranched structures where the junior tranche benefits from some form of guarantee (perhaps time-limited) provided jointly by member states or by some other form of credit enhancement.

A key question then becomes whether the benefits of increased safe asset supply are enough to justify the political effort and potential public cost that might be involved. Quantifying these benefits is tricky. Points worth noting include:

(1) Presumably, the scarcer are safe assets the greater (in proportion to the value of these assets) are the seigniorage or other economic benefits accruing from their existence. In other words, the marginal benefit of safe asset creation is skewed towards the first such assets created, and the additional benefits accruing from issuance above some practical upper level are likely to be negligible, see Figure 1. Eurozone member states may not need a large stock of very creditworthy member state debt to collectively capture most of the available seigniorage and other benefits offered by European safe asset issuance.
(2) Moreover, in the absence of ultra-safe assets, other assets (here principally existing member state government debt) will provide an economic substitute (albeit an imperfect one). In a

perfect market, available seigniorage and other benefits would presumably be spread across these substitutes. In such a hypothetical market structure, market participants can be assumed to be fully informed about how best to factor in these imperfections into their market strategies. Therefore, potential gains from increasing the availability of safe assets is likely to be strongly linked to the current level of efficiency of financial markets. If markets are already quite efficient, any available additional gains may be less than might otherwise be supposed.

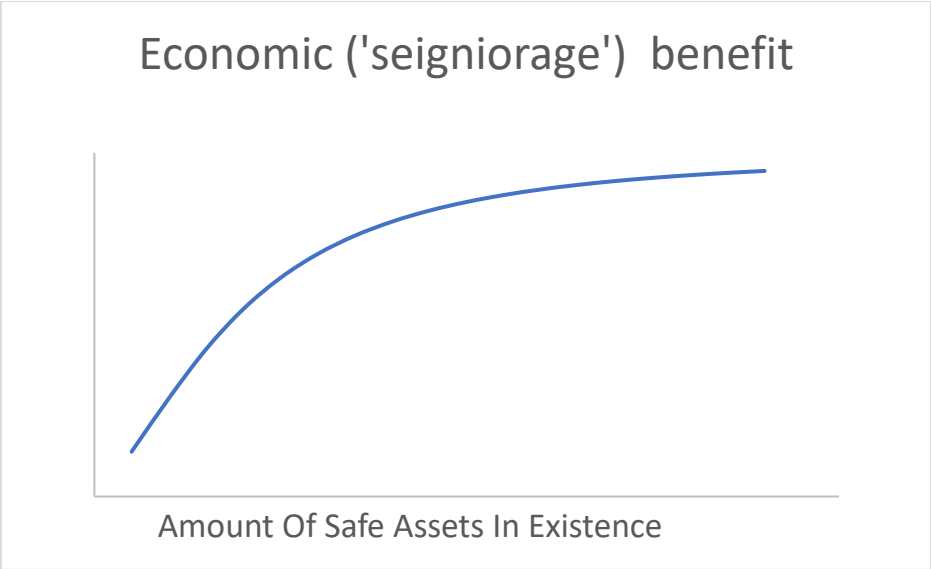
(3) We may conceptually split safe asset issuance between *short-duration* assets and *long-duration* assets.

(4) Most derivative transactions and securities lending transactions are collateralised using cash. The ECB (alongside relevant member state central banks) plays a key role in facilitating the conversion of collateral potentially available from holdings of term instruments into cash that can be posted as collateral for such transactions. The linkage between the supply of *long-duration* safe assets and these parts of the financial system is somewhat tenuous.

(5) The ECB alongside relevant member state central banks can therefore probably be viewed as having already created pseudo-tranched structures supplying additional *short-duration* safe assets via its collateral and other programmes. These aim to create enough ultra-short duration safe assets to meet required demand for collateral, with market participants paying a premium that can vary through time to compensate for the risks involved. These premiums in effect compensate central authorities for retaining ownership of all the tranches that otherwise would have been issued if the programmes had been structured as tranched vehicles.

(6) Most available seigniorage and other benefits that might accrue from issuance of *short-duration* European safe assets may therefore already be being captured via existing central bank mechanisms.

Figure 1: Stylised characterisation of the diminishing marginal utility of issuance of additional safe assets



Source: author's own elaboration

A good case can be made that increased *long-duration* European safe asset issuance might be desirable on financial stability grounds, e.g. because it could assist in the mitigation of risks that might otherwise be present in the maturity transformation occurring within the financial system. In ESRB (2018) Volume II, market participants are reported as suggesting that "*SBBS should be issued along the curve, with a focus on long-term maturities*". It also notes that "*SBBS would open up the euro area to new market segments and increase demand among global investors. From a global*

perspective, an SBBS programme would be "momentous" (in the words of a senior manager at one of the largest asset managers)."

However, it is difficult to quantity robustly non-financial stability economic benefits that might accrue from additional long-dated safe asset issuance:

(a) An interest rate yield curve can always be inferred even from credit risky assets as such a yield curve derives from market clearing investor preferences for cash flows of different durations.
(b) The appeal of long-duration safe assets therefore mainly relates to the scope they offer to banks and others to facilitate contracts such as interest rate swaps that allow investors to adjust the terms of their cash flows, particularly if the safe asset has a term at which debt issuance by others is limited.
(c) The economic reward (akin to seigniorage) accruing to European long-duration safe asset issuers is likely to be at least as large as the yield differences typically observed between 'on-the-run' and 'off-the-run' issuance, i.e. recent issuance that is most liquid versus less recent and less liquid issuance. The yield difference in the US treasury debt market seems to be around 0 – 15 basis points per annum in normal circumstances, see e.g. Clark, Cameron and Mann (2016). This is a level that is not easy to arbitrage against (c.f. the near failure of Long-Term Capital Management[3]) but also not negligible overall. Presumably the same would also be true in the Eurozone. In addition, even off-the-run issues are typically more liquid than all but the largest corporate issuers, so presumably there is also some corresponding continuing funding benefit to safe asset issuers even after the issue has gone off-the-run.
(d) However, again it can be argued that these benefits do not scale linearly in proportion to the amount of safe assets issued, e.g. doubling the amount issued is unlikely to create double the amount of economic benefit. Moreover, if markets are tolerably close to efficient then much of the available overall economic benefit (and or seigniorage accruing to the issuers) might be already captured via existing substitutes (here principally existing member state government debt). Additional central European / Eurozone safe asset issuance might therefore primarily involve reapportioning these seigniorage benefits between member states, rather than creating additional benefits.
(e) Banks could manufacture interest rate swaps without the presence of safe assets but doing so might be riskier for them. Much of the debate around the desirability of increasing the stock of Eurozone-wide safe assets relates to how best to mitigate these risks. However, some of these risks might be capable of being addressed by methods other than issuance of additional safe assets, e.g. by changes to bank regulatory capital requirements. As noted above, some of the ways market practitioners have proposed to create additional long-duration safe assets might only flourish if certain changes to such requirements are also introduced.

To put it another way, we might as per usual economic theory expect the marginal economic benefit arising from issuance of additional safe assets to fall as the amount issued rises, as per Figure 1. At issue is where on such a chart does the current level of issuance of European safe assets lie? Is it towards the left-hand end, implying significant benefits would accrue from extra issuance, or towards the right-hand end, where the economic benefits of extra issuance would be much less?

Leandro and Zettelmeyer (2019) noted (when they wrote) that there was only about EUR 1.5 trillion in euro area central government debt rated AA+/Aa1 or higher (EUR 3.2 trillion if AA/Aa2 rated French bonds were included) compared to almost US$15 trillion in US treasuries. However, is this a measure of shortage of euro-zone highly rated government debt or of abundance of US government

[3] See e.g. Lowenstein (2001).

debt? Nearly everyone would be happy to see the stock of safer eurozone government debt increase if it was due to improved creditworthiness of the less creditworthy member states. Less clear is the scale of the benefit that would accrue from the issuance of additional safe assets not arising from any actual improvement in average sovereign creditworthiness.

Exploring liquidity in the US treasury market further, particularly the dichotomy between on-the-run and off-the-run instruments, Estes (2016) notes that the then six on-the-run benchmark securities made up less than 2% of the then total $13.4 trillion of total outstanding supply but constituted 68.5% of total daily volume. If, as seems reasonable, we posit some link between seigniorage benefit and liquidity and hence with traded volume, the existing stock of eurozone safe assets looks less paltry in relation to merely the 2% of $13.4 trillion = c. $0.27 trillion stock of on-the-run US treasuries.

The eurozone sovereign debt market has a substantially different structure to the US treasury market. The analysis in Renzis et al. (2018) suggests that liquidity in the eurozone sovereign debt market is potentially more strongly linked to size of issuance than to creditworthiness of the sovereign in question. Approaches that fragment issue size may therefore be counterproductive.

6. Conclusions

A case can be put forward supporting efforts to create additional European safe assets, principally on financial stability grounds. Occasionally the sovereign-bank feedback loop has historically worked in a country's favour, but e.g. Reinhart and Rogoff (2009) suggest that more commonly the feedback is less favourable, via intertwined banking and sovereign debt crises.

However, some of the systemic risks that might be mitigated via such issuance might be capable of being addressed by methods other than issuance of additional safe assets, e.g. by changes to bank regulatory capital requirements. Indeed, some of the ways market practitioners have proposed to create additional long-duration European safe assets might themselves need some regulatory changes in order to get off the ground.

In theory, the creation of additional European safe assets ought to offer other economically meaningful benefits to financial market participants and as a corollary to the broader economy. However, in relation these additional benefits:

(a) It is unclear how much is the marginal economic benefit available purely from the creation of additional safe assets; the benefit likely tapers as the stock of such assets increases. Much of the available benefit may already be captured by the existing stock of liquid debt issued by member state governments deemed creditworthy by the market.
(b) For many financial market purposes, the benefits relate principally to adequate access to cash for collateral purposes. These benefits may already be mostly captured by existing collateral programmes run by the ECB and other relevant central banks. If so, the merits of additional *short-duration* safe asset issuance may be limited.
(c) Benefits accruing from issuance of additional *long-duration* safe assets are harder to capture through existing (cash) collateral programmes. The supposed shortage of relevant eurozone sovereign debt versus say the stock of US treasuries may reflect more the abundance of the latter than the shortage of the former. Political challenges seem likely to limit the feasibility of direct issuance of extensive amounts of long-duration safe assets by EU / Eurozone central bodies. Such issuance might in any case largely reapportion available seigniorage benefits rather than create new ones. The ideas researchers have explored the most involve the creation of tranched structures. However, these will likely suffer from additional costs

and a complexity premium. This may limit the willingness of third-party investors to support these structures (the structures need to find buyers for their junior tranches at yields that render the structures economically viable).

Policymakers supportive of the creation of additional European safe assets therefore often also refer to broader political agendas such as furthering the EU's proposed Banking Union and Capital Markets Union. The level of economic benefit expected to arise via such mechanisms is difficult to quantify because it depends on the presumed level of structural inefficiency present in the existing framework and on how creation of additional safe assets lines up versus other potential ways of promoting the same political agendas.

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Appendix A: Recent Approaches Proposed For European Safe Asset Issuance

Leandro and Zettelmeyer (2019) explore four different ways of using tranching or related concepts to create additional European safe assets. As elsewhere in this paper 'safe' is here interpreted as having a risk of default (i.e. credit risk) that is as low as possible, ideally at least as low as the best rated existing (eurozone) member state sovereign.

The four ways are summarised in the matrix below. Rows describe how seniority (in other words subordination of others) is achieved (either through tranching or by making the financial intermediary that issues the safe assets senior relative to other claimholders). Columns describe the order of diversification (across underlying sovereigns) and seniority. All arrangements proposed in practice that involve a senior intermediary issuing plain vanilla debt also involve first seniority, then diversification across sovereigns, so the bottom right hand cell of the table is empty.

Table A.1: Proposed ways of manufacturing European safe assets			
		Order of seniority and diversification	
		Seniority first, then diversification	**Diversification first, then seniority**
Seniority	**… at the level of the debt instrument**	***National tranching***: Safe assets as senior tranche of national sovereign debt. Subsequently, diversification of senior tranches on bank balance sheets	***SBBS***: Safe assets as a senior security backed by a diversified portfolio of sovereign debt bought at market prices
	… at the level of the issuer	***E-bonds***: issued by a senior intermediary that buys national sovereign bonds at face value and passes on funding costs ***Debt issued by a euro area budget authority***	

Source: Adapted from Leandro and Zettelmeyer (2019)

Leandro and Zettelmeyer (2019) also provide a comparison of how well these four ways might support some specified policy objectives. The table below summarises their comparison, giving ranks from 1 (best) to 4 (worse) against each objective:

Table A.2: Summary comparison of proposals				
Policy objective	***National tranching***	***E-bonds***	***SBBS***	***Euro area budget***
Supports large volume of safe assts	4	3	2	1
Supports transition to new steady state	3=	3=	1	1= or 4 depending on mandate
Encourages fiscal discipline	2=	1	2=	unclear
Maintains liquidity or national bond market	4	2=	2=	1
Avoids redistribution	1=	4	1=	3
Avoids rise in borrowing costs of lower-rated countries	3=	1=	3=	1=
Avoids "backdoor mutualization"	2=	2=	1	unclear

Source: Adapted from Leandro and Zettelmeyer (2019)