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STUDY

Sovereign Concentration Charges: A New Regime for Banks' Sovereign Exposures

External authors: Nicolas Véron
Bruegel & Peterson Institute for International Economics

Provided at the request of the
Economic and Monetary Affairs Committee

November 2017

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Provided in the context of Economic Dialogues
with the President of the Eurogroup
in ECON

Abstract

Achieving the aim of Europe's banking union project, to break the vicious circle between banks and sovereigns, requires new policy initiatives. The most direct bank-sovereign linkages are national deposit insurance and concentrated domestic sovereign exposures. Thus, simultaneously with a European Deposit Insurance Scheme (EDIS) as proposed by the European Commission in 2015, the European Union should introduce regulatory disincentives against highly concentrated sovereign exposures of euro area banks. This paper makes a concrete proposal for a Sovereign Concentration Charges Regulation (SCCR), including calibration and careful transitional arrangements to avoid any disorderly market impact. The SCCR and EDIS together could realistically receive political approval in 2018 and be fully implemented within a decade.

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LIST OF ABBREVIATIONS

AT1	Additional Tier-1 capital
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BRRD	Bank Recovery and Resolution Directive
CET1	Common Equity Tier-1 capital
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
EBA	European Banking Authority
ECB	European Central Bank
EDIS	European Deposit Insurance Scheme
EEA	European Economic Area
ESM	European Stability Mechanism
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IRB	Internal Ratings-Based (approach in the Basel framework)
LCR	Liquidity Coverage Ratio
LSI	Less Significant Institution
MREL	Minimum Requirements for own funds and Eligible Liabilities
QE	Quantitative Easing
SCCR	Sovereign Concentration Charges Regulation
SI	Significant Institution
SRB	Single Resolution Board
SRF	Single Resolution Fund
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
TLAC	Total Loss-Absorbing Capacity

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EXECUTIVE SUMMARY

- Europe's banking union project, initiated in 2012, has had a promising start. But its stated aim of breaking the vicious circle between banks and sovereigns is very far from being achieved. A key bank-sovereign linkage is the euro area's home-bias problem, namely the fact that the sovereign exposures of many euro-area banks are highly concentrated in the home country, instead of being diversified within the monetary union.
- The home-bias problem, in turn, is a key obstacle to the adoption of a European Deposit Insurance Scheme (EDIS), as proposed by the European Commission in late 2015, because of the suspicion that deposits protected by EDIS would be used by banks, under moral suasion from their home country's government, to excessively increase their purchases of that government's debt. In turn, the absence of a full EDIS is one of the banking union's greatest weaknesses because deposits are not protected uniformly.
- There is therefore a strong policy case for the simultaneous consideration of EDIS and of a regulatory instrument targeted at reducing highly concentrated sovereign exposures. The adoption of one of these two reforms without the other is both unlikely and arguably undesirable.
- To address the home-bias problem, a general and mandatory (Pillar 1) regulatory requirement is necessary. It should focus on sovereign concentration risk rather than sovereign credit risk, constraining only large exposures as opposed to the risk-weighting of all sovereign assets (the latter might also be envisaged, but on the condition of a global consensus and thus presumably at a later stage). Because the home-bias problem is unique to the euro area, the new requirement should only be binding for the euro-area sovereign exposures of euro-area banks.
- This paper outlines a workable design for a Sovereign Concentration Charges Regulation (SCCR) as new EU legislation to be adopted as a complement of EDIS. The SCCR would add sovereign exposures above a certain threshold (defined as a ratio to Tier-1 capital), weighted by a coefficient (sovereign concentration charge) that increases with the exposure ratio, to risk-weighted assets in the capital ratio's denominator. The charges for concentrated sovereign exposures to different euro-area countries would add up.
- The proposed calibration for the SCCR errs on the side of leniency, to avert any risk of disturbance in sovereign debt markets. Sovereign exposures under 33 percent of Tier-1 capital would be entirely exempted. The marginal capital charges on concentrated exposures would be mild for exposures up to 100 percent of Tier-1 capital, and rise more steeply above that level. Should this calibration turn out to have an insufficient impact, it could be strengthened at a later stage.
- The proposed transitional arrangements are also designed to ensure a smooth path towards the new regime even if market conditions become less favourable than currently. The transitional arrangements include extensive consultation with market participants, a gradual phase-in over a long period and grandfathering (i.e. exemption from the concentration charges) of all debt issued before the SCCR's entry into force.
- The SCCR does not require any consideration of a euro-area 'safe asset', but can easily accommodate a safe asset if it is introduced and incentivise its use if deemed appropriate.
- While the banks' behavioural response to the new regime is impossible to predict with certainty, it is expected that most banks will respond to the introduction of the SCCR by diversifying their sovereign exposures away from their current home bias, but leaving them largely unchanged in euro-area aggregate. If so, the reform will neither materially impact banks' prudential ratios nor entail any material costs.
- The adoption of the proposed SCCR together with a full EDIS, ideally complemented by other reforms to increase risk-sharing and enhance market discipline in the banking policy framework, would significantly reduce bank-sovereign linkages and thus strengthen the banking union, foster greater EU financial integration, and increase financial stability for each member state and for the European Union as a whole.

1. INTRODUCTION

> *"[F]ollowing the sovereign debt crisis, the euro area experienced first-hand the risks of a diverging supervisory and regulatory framework for cross-border finance – and faced a serious threat of financial market fragmentation when those flows reversed. Safety was restored by elevating supervision and resolution to the European level with the banking union. This was key to re-establishing trust in the banking system and reviving cross-border capital flows within Europe. These are only the first steps, but the direction of travel has been drawn."*
> Mario Draghi, President of the European Central Bank (ECB), speech at the Economic Policy Symposium of the Federal Reserve Bank of Kansas City, Jackson Hole, 25 August 2017[1]

> *"[W]e are still far from achieving one of the key goals set at the beginning of the SSM, namely to neutralise the transmission of risks between banks and public sector finances at the national level."*
> Ignazio Angeloni, Member of the Supervisory Board of the ECB, speech at the Adolfo Beria di Argentine conference, Courmayeur, 22 September 2017[2]

> *"We rather stand at the beginning than at the end of the banking union project."*
> Thomas Wieser, President of the EU Economic and Financial Committee and of the Eurogroup Working Group, remarks at the Austrian Finanzmarktaufsicht conference, Vienna, 4 October 2017[3]

Europe's banking union has been central to the resolution of the euro-area crisis. It has had an encouraging start but remains unfinished business. If it remains in its current halfway-house condition, it may eventually move backwards and fail. There is a widespread awareness in the EU policy community that more needs to be done to strengthen the banking union. Nevertheless, the main recent attempt to do so, by the Dutch Presidency of the Council in the first half of 2016, ended in stalemate at the Ecofin Council meeting of 17 June 2016. Recent political developments create new opportunities. EU leaders should seize these opportunities on the basis of a few simple observations, which have become increasingly widely shared over recent years.

First, the bank-sovereign vicious circle that was at the core of the past ten years of crisis is still strong and needs to be tackled decisively. Second, the two major policy bottlenecks on the path to breaking the vicious circle are the full mutualisation of deposit insurance at the European level and the removal of the possibility for member states to use domestic banks as an instrument for preferential funding of their needs. Third, the latter objective implies that the debate on the regulatory treatment of sovereign exposures should be focused on addressing the high home bias in euro-area banks' sovereign exposures, irrespective of a member state's perceived creditworthiness – in other words, concentration risk not credit risk. A specific blueprint on how to do so is still missing from the European public policy debate. This paper is intended as a contribution to help close that gap.

The paper is structured as follows. Section *2* describes the euro area's home-bias problem and presents the policy case for addressing it in 2018, together with EDIS. Section *3* discusses the pros and cons of three key choices in that respect. Section *4* consequently outlines the possible content of a Sovereign Concentration Charges Regulation, including calibration and transitional arrangements. Section *5* tentatively assesses the possible impact of the SCCR. Section 6 concludes by framing the SCCR (and EDIS) in the broader context of possible reforms of Europe's banking union, capital markets union and the sovereign debt market and fiscal framework, as well as an overall assessment of their near-term political feasibility. *Annex A* describes the current regulatory treatment of sovereign exposures. *Annex B* and *Annex C* present, respectively, bank-level data on current (mid-2016) exposures and bank-level calculations of the (fictional) impact of the SCCR if it were introduced without transitional arrangements.

[1] Available at https://www.ecb.europa.eu/press/key/date/2017/html/ecb.sp170825.en.html.

[2] Available at https://www.bankingsupervision.europa.eu/press/speeches/date/2017/html/ssm.sp170922_1.en.html.

[3] Quoted in Alexander Weber and Boris Groendahl, 'EU Trims Deposit Insurance Plan to Break Bank Union Logjam', *Bloomberg*, 5 October 2017.

2. BREAKING THE BANK-SOVEREIGN VICIOUS CIRCLE

The banking union started in mid-2012 with the euro area leaders' stated intent "to break the vicious circle between banks and sovereigns" (Euro Area Summit Statement, 2012). In its current form, it consists of two main arrangements:

- the Single Supervisory Mechanism (SSM, also known as European Banking Supervision), centred on the European Central Bank (ECB), for the supervision and licensing of all banks in the euro area;[4]
- the Single Resolution Mechanism (SRM), centred on a newly created Single Resolution Board (SRB) with a Single Resolution Fund (SRF) at its disposal, for the administrative resolution of euro-area banks that are failing or likely to fail, and whose winding up through a court-ordered process might have disruptive consequences.

The banking union currently only covers euro area member states, but other European Union (EU) member states can join the SSM and SRM through a voluntary (and reversible) process known as close cooperation.[5] Simultaneously with the introduction of the SSM and SRM, the European Union also underwent a major overhaul of its banking legislation to move it closer to the vision of a single rulebook, including the Capital Requirements Regulation (CRR) of 2013[6] and the Bank Recovery and Resolution Directive (BRRD) of 2014.[7]

2.1 Banking union incompleteness and the home bias problem

This first phase of implementation of banking union, comprising the SSM and SRM, has broadly been a success so far. The SSM[8] assumed its full supervisory authority in November 2014 and, despite numerous teething troubles, some of them still ongoing, has quickly become a recognised and authoritative supervisor. The SRB assumed its resolution authority in January 2016[9] and has demonstrated its capacity to manage crises when taking its first resolution decisions in June 2017.[10] These early achievements are remarkable in the face of unique and daunting challenges.[11]

Even so, it is evident that Europe's banking union, in its current form, is incomplete, and more specifically that the "vicious circle between banks and sovereigns" identified in the landmark

---

[4] The supervision is direct for banks labelled Significant Institutions, of which there were 120 as of July1, 2017, the ECB's latest update of the corresponding list (ECB, 2017). The other banks, labelled Less Significant Institutions and all under EUR30 billion in total assets, are supervised on a day-to-day basis by the respective national authorities, under the ECB's supervisory oversight and with key decisions taken at ECB level, e.g. on the bank's license.

[5] In July 2017, both Denmark and Sweden have announced that they would consider a decision on close cooperation in 2019.

[6] Because the CRR was preceded by three successive iterations of the Capital Requirements Directive (CRD) and was published together with a fourth such iteration (CRD4), it is often itself (inaccurately) referred to as CRD4. The CRR (Regulation (EU)575/2013 of 26 June 2013) is available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0575&from=EN.

[7] The BRRD (Directive 2014/59/EU of 15 May 2014) is available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0059&from=EN. A proposal for significant amendments to the BRRD, CRR, CRD4, and SRM Regulation of 2014 has been published by the European Commission in late 2016 and is currently being debated by the EU legislators; the changes to CRR and CRD4 are sometimes referred to as CRR2 and CRD5. See European Commission press release, 'EU Banking Reform: Strong banks to support growth and restore confidence', Brussels, 23 November 2016, available at http://europa.eu/rapid/press-release_IP-16-3731_en.htm.

[8] The acronym SSM, which refers to the entire mechanism, is also widely used to refer to the newly created supervisory arm of the ECB, also known as ECB Banking Supervision.

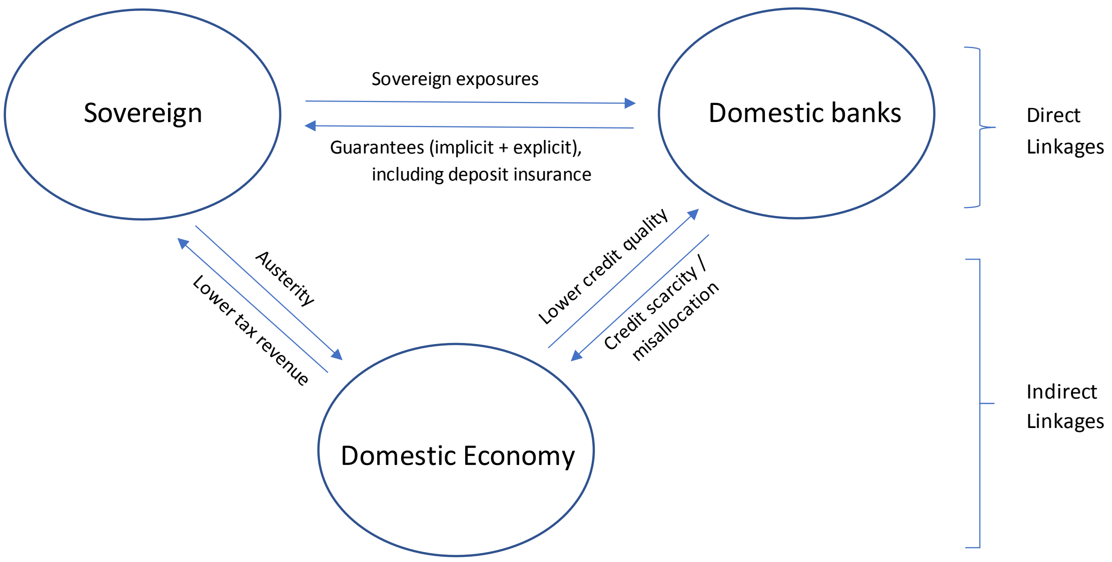
[9] The SRF is gradually building up and is scheduled to reach its permanent size and structure in 2024. As of July 2017, it had reached EUR17 billion (source: SRB press release, available at https://srb.europa.eu/en/node/362).

[10] These were, respectively, to take resolution action on Banco Popular Español, made on 7 June 2017, and to not take resolution action on Banca Popolare di Vicenza and Veneto Banca, both made on 23 June 2017.

[11] Early assessments of the SSM's performance include ECA (2016) and Schoenmaker & Véron (2016).

statement of 29 June 2012 has not been broken yet. Financial linkages between banks and sovereigns take multiple forms. They can be direct or indirect, and explicit or implicit. Direct links from banks to sovereigns include all government ownership or guarantees of banks' equity and liabilities, including the explicit government guarantee of insured deposits, and any implicit or explicit guarantee of uninsured deposits and other liabilities.[12] Direct links from sovereigns to banks include any claims of the banks on the sovereign that may be impaired in a sovereign debt restructuring, such as loans made to the sovereign and sovereign bond portfolios.[13] Strong indirect linkages also exist through the domestic economy. If a sovereign's creditworthiness declines, the economy is likely to suffer from poorer public services, higher taxation, and a higher cost of capital, exposing domestically-focused banks to asset quality deterioration and losses. If a country's banking sector experiences stresses, credit allocation in that country's economy will become less efficient, leading to lower growth and a squeeze on government finances. Conversely, a weak economy is bad for both banks' business and sovereign credit. These linkages are summarised in *Figure 1*.

Figure 1: Selected Contagion Channels between Banks and Sovereigns in the Euro Area



These bank-sovereign linkages are still very strong in the euro area. Most banks' exposures to the sovereign of the country in which they are headquartered ('home country'), or domestic sovereign exposures, remain very high. These banks have a correspondingly high 'home bias' in their sovereign exposures in the euro area, i.e. most such exposures are concentrated in the home country.

Table 1 illustrates this situation, using the latest available bank-level data from the European Banking Authority (EBA). It summarises bank-level data shown in *Annex B*, which includes all banks that submitted relevant data for the EBA's 2016 transparency exercise.[14] Based on end-2015 data, the 63 banks in *Table 1*'s sample together represent 83 percent of total assets of the euro-area's Significant Institutions (SIs),[15] which in turn represent 80-83 percent of the system's total assets including Less

[12] In the case of a government-owned bank, the sovereign is also explicitly exposed through equity ownership. The potential contribution of this linkage to the bank-sovereign vicious circle varies considerably between member states. It is not specifically addressed in this paper and would deserve future exploration.

[13] In some restructuring scenarios, other claims such as deferred tax assets can also belong to this category.

[14] See *Annex A* for more context about the EBA dataset. The only reporting bank not included in *Annex B* is Portugal's BPI, which was removed from the sample because it has since been absorbed by Spain's CaixaBank.

[15] To be precise, one of the 63 banks in the sample, Portugal's Caixa Central de Crédito Agricola Mutuo, is not a SI under the SSM Regulation, so the calculation was made on the basis of the other 62 with total assets taken from Table 6 in

Significant Institutions (LSIs).[16] On this basis, the observed sample covers about two-thirds of the euro-area's banking system, but is biased towards SIs (i.e. the larger banks) and even among these is not uniformly representative across countries, as shown on *Table 1*'s second column. The median home bias is very high at 75 percent.[17] A typical bank's domestic sovereign exposure is well in excess of its Tier-1 capital, with a median sovereign exposure ratio to Tier-1 of 135 percent; this ratio is under 100 percent for only two-fifths of the sample (26 banks out of 65) and under 50 percent for barely more than one-fifth (14 out of 65). Within the sample, neither the domestic sovereign exposure (measured as a ratio to Tier-1 capital) nor the home bias are strongly correlated with a bank's size (measured by total assets), beyond the very largest highly internationalised banking group such as BNP Paribas, Deutsche Bank, ING, Santander, or Société Générale, whose domestic sovereign exposures are comparatively low. *Table 1* also illustrates some idiosyncratic national determinants of bank-sovereign linkages. The high average domestic sovereign exposure ratio in Germany, for example, is linked to the role public banks play in the financing of local government in that country.

Table 1: Sovereign Exposures of Euro Area Banks, end-June 2016

	Number of banks in sample	Coverage of country's SIs (by assets)	Unweighted average domestic sovereign exposure ratio	Weighted average domestic sovereign exposure ratio	Median Home Bias
Cyprus	2	58%	47%	30%	92%
Germany	15	92%	222%	159%	85%
Spain	3	67%	129%	102%	78%
Ireland	3	89%	91%	79%	75%
Slovenia	2	80%	147%	144%	74%
Italy	6	78%	199%	171%	73%
Greece	4	100%	60%	60%	72%
France	6	93%	99%	114%	70%
Portugal	4	85%	153%	155%	66%
Belgium	4	65%	217%	209%	62%
Austria	6	95%	90%	78%	58%
Malta	2	65%	122%	178%	41%
Netherlands	4	95%	52%	46%	35%
Finland	1	25%	21%	21%	27%
Luxembourg	1	23%	49%	49%	13%
Total	**63**	**83%**	**142%**	**119%**	**75%**

Source: author's calculations based on *Annex B*, on the same sample of banks minus outliers BNG and SFIL. Countries are ranked by decreasing median home bias of banks headquartered on their territory. The domestic sovereign exposure ratio is the ratio of domestic sovereign exposure over Tier-1 capital. The weighted average is weighted by Tier-1 capital, i.e. calculated as the ratio of aggregate domestic exposures over aggregate Tier-1 capital for all the country's banks in the sample. The home bias is defined as the ratio of domestic sovereign exposure to aggregate sovereign exposures to euro-area countries. Banks are assigned to countries on the basis of their country of headquarters, which explains the absence from the table of Estonia, Latvia, Lithuania, and Slovakia, where none of the sample's banks is headquartered.

Additional observations on EU banks' sovereign exposures before and during the financial crisis, partly based on non-public data, are in ESRB (2015). More findings and analyses, largely based (like

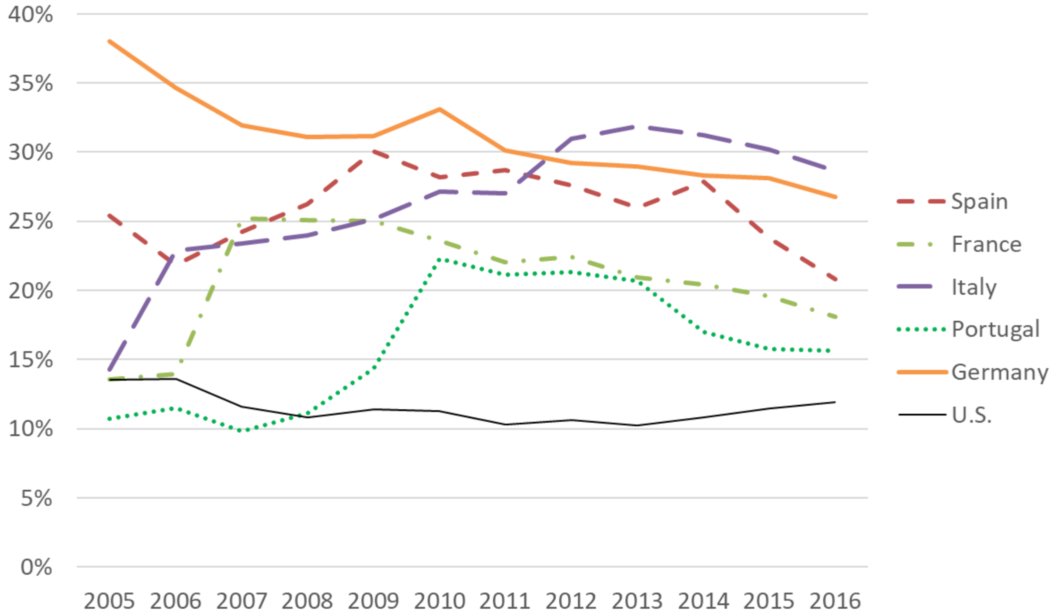
Schoenmaker and Véron (2016). If outliers BNG and SFIL are included, as in *Annex B*, the coverage ratio rises from 83 to 84 percent.

[16] That ratio was 83 percent as of end-2015 and 80 percent as of end-2016, based on the ECB's Annual Reports on supervisory activities for 2015 and 2016 respectively. Unfortunately, the ECB does not publish disaggregated financial data on the banks it supervises.

[17] In turn, aggregate euro-area sovereign exposures represent at least three-quarters of total (global) sovereign exposures for the vast majority of banks listed on *Annex B* (48 out of 65, or 74 percent), and at least half for almost all banks (59 out of 65).

Table 1 and *Annex B*) on public data from the EBA, are in Lenarcic, Mevis and Siklos (2016); Enria, Farkas and Overby (2016); and Gereben (2016), among many others.[18] Over time, the banks' aggregate exposure to EU sovereigns, including to their home country, has tended to decrease prior to 2008, but to increase again after that year, especially in countries with more stressed sovereign debt conditions (ESRB, 2015). In aggregate, domestic banks typically hold between 15 and 30 percent of the outstanding sovereign debt stock of their respective countries, with variations over time and across countries, as illustrated in *Figure 2*.

Figure 2: Ownership Share of Domestic Banks in Sovereign Debt Outstanding (selected countries)



Source: ECB, US Federal Reserve Board, US Treasury. Updated and adapted from Figure 1 in Lenarcic, Mevis and Siklos (2016), adding US agency securities, non-marketable public debt and some components of marketable public debt in the definition of US sovereign debt.

The banks' sovereign exposures home bias has unique features in the euro area, with the consequence that it constitutes a specific policy problem there. There is much confusion in the policy debate on this issue, to which we return at the end of the next section. In other jurisdictions,[19] the country coincides with the currency area, and as a consequence, sovereign exposures denominated in a bank's home currency are inevitably domestic, and any foreign sovereign exposures come with the associated exchange-rate risk (which can be hedged, but at a cost). In the euro area, by contrast, neither exchange-rate risk nor the existing regulatory framework create any incentives for banks to hold domestic sovereign exposures as opposed to sovereign exposures in other euro-area countries. The causal drivers of the high current home bias within the euro area, as measured in *Table 1*, are thus far from self-evident. This issue is covered by an increasingly abundant literature,[20] but no clear consensus has emerged yet from it, certainly among public policymarkers and market participants. Irrespective of causality, it is logical to view the euro-area equivalent to other jurisdictions' domestic

[18] It is probable that the European high-level working group on the Regulatory Treatment on Sovereign Exposures, mentioned in Section *2* above, conducted additional research and simulations, but unfortunately none of its output has been made public so far. Other organizations including the BIS/BCBS, ECB and International Monetary Fund (IMF) may also have conducted significant yet unpublished empirical research on European banks' sovereign exposures.

[19] Leaving aside member countries of the Eastern Caribbean Economic and Currency Union, the Economic and Monetary Community of Central Africa, and the West African Economic and Monetary Union, which have not been studied for the preparation of this paper.

[20] Some relevant references include Altavilla, Pagano and Simonelli (2017), which itself includes a literature analysis of the topic; Acharya and Steffen (2013); Angelini, Grande and Panetta (2014); Becker and Ivashina (2017); Broner, Erce, Martin and Ventura (2013); De Marco and Macchiavelli (2016); ESRB (2015); Horvath, Huizinga and Ioannidou (2015); Ongena, Popov and Van Horen (2016).

sovereign exposures as being the banks' aggregate exposures to euro-area sovereigns, as opposed to their exposure to the home country alone. In international comparison, that aggregate exposure on average is high in the euro area, but not uniquely so. What is specific to the euro area, and the problem from the standpoint of the bank-sovereign vicious circle, is the home bias within the euro area. This is a problem other jurisdictions do not have.

In the other direction with reference to *Figure 1*, of direct linkages from banks to sovereigns, explicit deposit insurance remains entirely at the national level. Some euro-area countries also explicitly guarantee other liabilities of domestic banks: for example, Italy's government guarantees newly issued bank bonds (Foti, 2017). Implicit guarantees still exist on top of the explicit ones, at least in some member states, and even though they have been reduced by the entry into force of the SSM, SRM, BRRD, and the European Commission's policy of state aid control as currently framed in the Banking Communication of 2013 (European Commission, 2013). This was evidenced most recently by the Italian determination to reimburse all senior unsecured creditors of Banca Popolare di Vicenza and Veneto Banca, when these two banks were liquidated in late June 2017.

Indirect (macroeconomic) linkages also remain strong, since many banks retain a high domestic focus in their home country, and many euro-area member states, including the five largest ones, display low levels of penetration of their national banking market by banks headquartered in other countries. In addition, strong political linkages exist through the idiosyncratic patterns of governance and ownership of many banks in the euro area, including cases of public-sector ownership, but not limited to them (Véron, 2017).

The actions of the SSM and SRM within the current legislative framework, no matter how effective, cannot alone address all these linkages. New policy initiatives are needed to break the vicious circle. In a landmark article of May 2013, Germany's then federal finance minister argued that a 'timber-framed' banking union had to be established as a matter of urgency, but that it should later on be transformed into a "steel-framed" banking union which he described as "*our long-term goal: a truly European and supranational banking union, with strong, central authorities*" (Schäuble, 2013). While the details are no longer the same as almost five years ago, that broad vision remains apt. As long as the mechanisms that drove the bank-sovereign vicious circle in 2011-12 remain largely extant, a similar sequence of contagion and dislocation cannot be ruled out. It is conceivable, even plausible, that the incentives generated by all the remaining bank-sovereign linkages might lead to a future reversal of what has been achieved under banking union, namely a renationalisation of supervision and crisis management. In sum, the banking union as it currently exists is a halfway house. It is too fragile, and needs significant strengthening to be sustained over the long term.

A 'steel-framed' banking union would in principle entail the elimination or at least a dramatic reduction of all the linkages listed above, explicit and implicit, direct and indirect. Achieving this aim will require appropriate sequencing. Indirect macroeconomic linkages can only be addressed by the geographical diversification of an increasing number of euro-area banks' activities. Public policy can remove the existing obstacles, and suggestions for that are made in Section *6*, but even so, the process of cross-border banking integration will be inherently gradual and market-driven (see Nouy, 2017). By contrast, the direct and explicit linkages described above can and should be addressed head-on by policy measures. That, in turn, will encourage the geographical diversification of euro-area banks.

A complementary way to envisage the strengthening of banking union, or breaking the bank-sovereign vicious circle, is to consider the outcomes in terms of plausible crisis resolution scenarios. The bank-sovereign vicious circle would cease to be a lethal threat for the euro area if (1) any euro-area country encountering sovereign solvency challenges can undergo sovereign debt restructuring without automatically triggering a domestic banking panic, and (2) any major banking crisis can be managed and resolved without automatically generating sovereign debt distress (and capital controls). This alternative framing leads to the same policy conclusions. Outcome (1) cannot be achieved without a sharp reduction of the current levels of banks' concentrated domestic sovereign exposures, and (2) is not credible as long as national sovereigns are the ones providing the ultimate guarantees on the banking system (even reduced by BRRD), starting with deposit insurance. The latter point was illustrated in an extreme manner by the 2013 Cyprus crisis. Both outcomes are made easier if more banks have a cross-border presence, but once again, the reduction of indirect (macroeconomic) bank-sovereign linkages can only happen gradually, and would also be accelerated if the direct linkages are eliminated first.

2.2 The complementarity between EDIS and constraints on sovereign exposures

The above analysis highlights the complementarity between tackling direct linkages from banks to sovereigns on the one hand, and from sovereigns to banks on the other hand. The logic of envisaging the corresponding policy reform in a joined-up manner, and in the same sequence of decision-making (even though both require long transition periods before full implementation), is not only political, but also rests on policy substance. Deciding on one without the other, even assuming political feasibility, could turn out to be destabilising and damaging.

In much of the rest of this paper, EDIS[21] is referred to as the centrepiece of a broader effort to shift the banking sector's public safety net from the national to the European level. This effort would include other complementary initiatives, which are listed in Section *6*, but it is appropriate (though far from a universally shared view) to place EDIS as its core. Trust in deposits is the bedrock of confidence in the financial system, and ensuring its eventual and unconditional homogeneity throughout the euro area should be viewed as paramount among "risk-sharing" financial reforms. At a practical level, as long as deposit insurance is entirely national (as now) or includes a strong national component, a lack of trust in national sovereign creditworthiness can precipitate a retail bank run. At a more holistic level, implementing EDIS would be viewed (correctly) by retail savers and market participants alike as a signal of commitment of all euro-area member states to banking union as a structural and irreversible policy framework, dispelling the doubts that currently still linger and thus anchoring expectations that would play a critical role in future crises.

In the same vein, half-hearted approaches to EDIS will not be effective. For the package to be stabilising overall, it is critical that EDIS achieve the aim of supporting the same level of confidence in all euro-area insured deposits (under the insurance threshold, currently set at EUR100,000) irrespective of where they are located. Deposit insurance is about retail mass psychology, and needs to be simple and unambiguous to function as intended. Thus, EDIS must be a fully mutualised scheme and not be dependent on any national circumstances at the end of the inevitable transition period. Hybrid regimes in which the steady state would be one of deposit re-insurance instead of direct European insurance (e.g. Gros, 2015) would not achieve this objective and are thus not worth considering. Similarly, the European Commission's recent suggestion of an open-ended approach that would not include any commitment to full mutualisation of deposit insurance (European Commission, 2017b) does not represent what this paper refers to as EDIS. In other words, references to EDIS in the rest of this paper are all to a mechanism identical or near-identical to the European Commission's original proposal of November 2015, with due adjustment as to the length and end-date of the transition period.[22]

Implementing EDIS without addressing the home bias problem would allow abuses. Member states, especially those under financial stress, could exercise moral suasion over domestic banks so that these would buy unlimitedly large quantities of their debt, funded by deposits protected by EDIS. This in turn would be viewed, not unfairly, as an indirect form of European guarantee over the funding of

[21] For the EDIS proposal, see European Commission press release, "A stronger Banking Union: New measures to reinforce deposit protection and further reduce banking risks", Strasbourg, 24 November 2015, available at http://europa.eu/rapid/press-release_IP-15-6152_en.htm.

[22] In the November 2015 proposal, the transition lasted eight years and was due for completion of 2024.

national governments, without the due accompanying disciplines. The ability of national governments to apply moral suasion on banks has been much eroded by the creation of the SSM and SRM, but it is far from having been eliminated – irrespective of its role in generating the currently observed home bias, which as mentioned above is not yet a matter of analytical consensus. Thus, a regulatory mechanism needs to be introduced together with EDIS, so that this form of what economists loosely call 'financial repression' is made impossible.

Conversely, curbs on undiversified sovereign exposures without a clear European commitment to sharing the tail risks, best enshrined in EDIS, would be potentially destabilising and could even precipitate crises. Without a simultaneous introduction of EDIS, the removal of the specific role of domestic banks could disturb some sovereign debt markets; in turn, if the guarantee is only at the national level, such disturbances could directly impair confidence in banks, which may trigger destabilising deposit flight and elevated levels of reliance on central bank liquidity which in turn can quickly reach an unacceptable level, as it has been observed in February-March 2013 in Cyprus or in June-July 2015 in Greece.[23] EDIS alone would of course not eliminate all procyclical effects, including the possibility of a run on wholesale liabilities and/or uninsured deposits.[24] But it would credibly address the tail risk of a retail bank run, thus sharply reducing the plausibility of a disorderly panic that has been the dominant scenario of euro area break-up in the last decade of turmoil.

A clear understanding of these interdependencies is critical to ensuring financial stability in the euro area. It is often noted that domestic banking systems can play a role of shock-absorber in situations of sovereign debt stress (e.g. Visco, 2016). This argument was most memorably propounded by France's president Nicolas Sarkozy in late 2011, in a comment on the new ECB programme of 3-year Long-Term Refinancing Operations (LTRO), namely: *"This means that each state can turn to its banks, which will have liquidity at their disposal"*.[25] Such a shock-absorbing effect can indeed be stabilising in the short term, but obviously participates in the bank-sovereign vicious circle and is thus structurally destabilising for the euro area as a whole. An important lesson of the crisis, and especially of its most disorderly phase between mid-2011 and mid-2012, is that the structural destabilising impact of the bank-sovereign vicious circle is far greater than the short-term stabilising impact of the 'Sarko trade'.

Thus, EDIS and regulatory measures to address concentrated sovereign exposures go hand in hand. This analysis correspondingly updates the widespread but incomplete description of a complete banking union consisting of three "pillars", namely the SSM, the SRM, and EDIS.[26] The three-pillars narrative has been a useful way to think about the new institutions required at the outset of the banking union project, but does not sufficiently capture the economic and financial linkages summarised in *Figure 1*. Specifically, the above-mentioned concern, that EDIS without curbs on concentrated sovereign exposures could be an open door to moral suasion and national financial repression with a European guarantee, goes a long way to explain why EDIS has not been endorsed yet, despite the European Commission's compelling initial design.

The European Commission appears not to have fully acknowledged so far the incompleteness of its approach. This is observable in its reflection paper on euro-area reform (European Commission, 2017a), which suggests an agreement to implement EDIS by 2019 at the latest but does not propose

[23] In the 2015 Greek crisis, the SSM was in place and effectively forbade the Greek banks from increasing their exposure to the Greek sovereign.

[24] This is arguably what happened at Banco Popular Español in early June 2017.

[25] Paul Taylor, "ECB limits bond buying, eurozone looks to banks", *Reuters*, 9 December 2011, available at http://uk.reuters.com/article/uk-eurozone-ecb/exclusive-ecb-limits-bond-buying-eurozone-looks-to-banks-idUKTRE7B80OA20111209. The banks' purchases of domestic sovereign debt were subsequently dubbed "the Sarko trade" by market participants and analysts. See e.g. Neil Hume, "How big could the Sarko trade go?", *FT Alphaville*, 15 December 2011, available at https://ftalphaville.ft.com/2011/12/15/802151/how-big-could-the-sarko-trade-go/.

[26] The European Commission referred to the three-pillar vision when publishing its EDIS proposal in November 2015.

changes to the regulatory treatment of sovereign exposures before 2020; in the European Commission President's State of the Union speech of 13 September 2017 and accompanying "letter of intent" (Juncker, 2017; Juncker and Timmermans, 2017), which refer to the adoption of EDIS but not to the regulatory treatment of sovereign exposures; and in its above-mentioned recent suggestion to water down its own EDIS proposal (European Commission, 2017b), which suggests that EDIS would never reach a state of full mutualisation. Recognition by the European Commission and other EU institutions of the policy interdependence between EDIS and regulatory action on sovereign exposures would be important to break the current policy deadlock.

2.3 The 2018 opportunity

This discussion is timely. Memories of a decade of crisis are still fresh, and there is a near-universal consensus in the European policy community that the current policy framework of the euro area is not resilient enough and needs further reform. Specifically, the objective of bringing banking union closer to completion is near-universally shared by European policymakers, judging by their rhetoric. But unlike a year or two ago, there is also no longer any immediate situation of systemic fragility that would make it practically impossible for leaders to think proactively about reform. Both France and Germany, the euro area's two largest countries, have just gone through national election cycles, a coincidence that only happens once every twenty years,[27] and Italy is expected to have completed its own such cycle in less than four months. For these and a number of other euro-area countries, the next major political test is the European Parliament election in the spring of 2019. This leaves an extended period of time during which meaningful reform discussions can be held without being disrupted by immediate electoral concerns in a critical number of member states.

Legacy problems are being addressed, belatedly but credibly, and to a greater extent than many observers realise, even though much effort still lies ahead. They should no longer be an obstacle to reform, either from the standpoint of 'creditor' countries that desire to escape liability for the corresponding burden, or from that of other countries that fear financial instability. Until 2017, there were lingering doubts about the sustainability of entire national banking systems, particularly in Italy and Portugal. But in the past twelve months, the most significant cases of problem banks have been resolved, convincingly if not always elegantly.[28] Non-performing loans are being worked out or sold by banks that still hold them, at an accelerating pace. At the same time, and leaving aside the special case of Greece which is still under an assistance programme, higher growth rates and prospects make it increasingly unlikely that any euro-area country would face a sovereign debt crisis any time soon, even in a scenario of monetary policy tightening (Blanchard and Zettelmeyer, 2017). Taking into account the long transition period associated with the EDIS proposal, the potential for future risk-sharing initiatives to be used to address the legacies of the past ten years of turmoil is becoming negligible, irrespective of one's opinion on the desirability thereof. Simultaneously, the improved market conditions and prospects, not to mention the ECB's quantitative easing (QE) policy since early 2015, mean that the discussion of new initiatives that imply more market discipline, such as on concentrated sovereign exposures, are no longer at risk of re-igniting sovereign debt market turbulence, as memorably happened in October 2010 when clumsy communication on the possibility of sovereign debt restructuring following a bilateral French-German summit in Deauville sent jittery markets into turmoil.

As mentioned above, EU policy discussions on the regulatory treatment of sovereign exposures held in the past few years have not been conclusive. A public report of the European Systemic Risk Board (ESRB, 2015) provided an initial basis of data analysis and sketched several policy options. On this

[27] The French national election cycle is of five years, and the German one of four years.

[28] These include, in Portugal, the recapitalization of Caixa Geral de Depositos and of Millenium BCP Group and the acquisition by Lone Star of control of Novo Banco, following the earlier purchase of BPI by Spain's CaixaBank; and in Italy, the nationalisation (through precautionary recapitalisation) of Monte dei Paschi di Siena, the liquidation of Banco Popolare di Vicenza and Veneto Banca, and ongoing efforts to address any balance sheet weakness of Carige.

basis, a high-level working group of the European Economic and Financial Committee (EFC) was formed in 2015 and produced a report in 2016, but all corresponding material has been kept confidential (Dutch Presidency of the Council, 2016; Duvillet-Margerit, 2017). The Ecofin council of 17 June 2016 failed to crystallise any consensus on reform. Instead, member states agreed to kick the issue into the long grass, namely to *"await the outcomes of the Basel Committee"* (Council of the European Union, 2016), with reference to a discussion within the Basel Committee on Banking Supervision (BCBS) which at this point still appears far from reaching any conclusion (see *Annex A*).

Just as there is a significant opportunity in 2018, there would be much risk in doing nothing. An absence of progress towards a fuller banking union would leave the euro area vulnerable to a revival of concerns about the bank-sovereign vicious circle, presumably not in the near term given the strength of the current recovery, but quite possibly in the more distant future. Since the 2018 political window of opportunity is so exceptionally favourable (as also underlined by Juncker, 2017), a failure to make progress at this occasion would be a signal of durable deadlock, of much greater significance than the stalling of discussions about EDIS and sovereign exposures in 2016. If a deal cannot be achieved in these circumstances, market participants may plausibly conclude it will never be. This could ignite renewed pessimism about the future of banking union and of the euro area itself, and trigger a new cycle of euro area fragility, especially in the event of a future economic and financial downturn.

3. THREE CHOICES: PILLAR 1; CONCENTRATION CHARGES OVER RISK WEIGHTS; EURO AREA OVER EU-WIDE

Recent and ongoing policy debates over the regulatory treatment of sovereign exposures have tended to keep many options open in terms of reform design – arguably too many. This is the case in the ESRB report of March 2015 (ESRB, 2015), a public Presidency Note of April 2016 (Dutch Presidency of the Council, 2016), and presumably also in non-public policy documents such as the 2016 report of the EFC high-level working group and any output of the BCBS task force. To move closer to a decision, it is desirable to form a clear sense of priorities and to narrow down the menu of short-term options. Before moving to a (relatively) detailed specific proposal in the next section, this section is devoted to discussing three of the most defining choices to be made in the design of a new sovereign exposures regulatory regime.

The first choice is whether to introduce requirements that are binding and equally applicable to all banks, i.e. under Pillar 1 as defined in the Basel framework, as opposed to a bank-by-bank approach under supervisory discretion (Pillar 2) and/or mere mandatory disclosure requirements (Pillar 3). The second choice is, within Pillar 1, whether to act on the current exemption of sovereign exposures from risk-weighting (in the standardised approach of the Basel framework, and in the form of permanent partial use in the IRB approach under CRR – see *Annex A*), or on their exemption from large exposure limits (in both the Basel framework and CRR), or both. The third choice is about the geographical scope of the reforms considered, which may apply only to banks established in the euro area, or to all banks established in the 'banking union area' in case this area would be enlarged beyond the euro area in the future through close cooperation, or to all banks in the European Economic Area (EEA) covering the entire single market.

3.1 Pillar 1, not just Pillar 2/3

The first question is comparatively easiest to answer. To address the euro area's home bias problem, it is clear that Pillar 2 and/or 3 measures are insufficient, and that new Pillar 1 requirements are necessary. (See *Annex A* for an introduction to the 3-Pillar structure of the Basel framework.)

Pillar 2 decisions cannot be expected to provide a sufficient response to the challenge of banks' undiversified sovereign exposures. In principle, the issues at stake, including the home bias problem in the euro area, are of a general rather than idiosyncratic nature, and as such do not belong to Pillar 2. In practice, they have too much potential impact beyond the banking sector, including on sovereign debt markets, to be left to the discretion of independent bank supervisors in individual non-public decisions. The decision to constrain banks' sovereign exposures must be made through a political and legislative process, with general applicability and the corresponding transparency and consultative steps.

A Pillar 3 approach would be even more ineffective. The disclosures through EBA-coordinated exercises, described in *Annex A*, have not brought an end to concentrated domestic exposures even among those banks that published the data voluntarily.

Similar observations apply to macroprudential measures. The home bias problem is general among euro-area banks and not limited to a particular phase of the financial cycle. Hence, its resolution does not correspond to the mandate for macroprudential policy.

This is not, of course, to deny the relevance of Pillars 2 and 3 (or macroprudential policy) in the debate on sovereign exposures. Supervisors may impose additional constraints under Pillar 2, not least using stress testing as a way to address sovereign credit risk, as suggested at the end of the following subsection. As for Pillar 3, specific disclosure requirements are suggested as part of the SCCR outline in the next section.

3.2 Concentration charges rather than risk weights

On the face of it, risk weights on sovereign exposure sound like a proposition of common sense. No government debt is free of credit risk, even in so-called advanced economies, as the Greek sovereign default of March 2012 has illustrated. Thus, a risk weight set at zero creates distorted incentives to hold the debt and ignore the risk. Along that line of thinking, a positive risk weight would *a priori* better embed a realistic risk assessment in the regulatory framework. It is a simple narrative that is particularly appealing to political leaders in countries whose sovereign risk is perceived to be low, and who desire to send a signal of discipline to other countries whose sovereign risk is perceived to be higher. There are at least four major problems, however, with that proposition.

First, sovereign risk weights are easier said than done. If the risk weight is not zero, then how much should it be, and equally important, who should set it? There is no uncontentious answer to these questions. Even after the U.S. subprime-crisis experience of the fallibility of credit rating agencies, the Basel framework and CRR still rely heavily on their ratings for risk assessment and weighting under the standardised approach. Even so, extending this reliance to sovereign risk weights would greatly expand the impact of the rating agencies' decisions and assorted controversies about their governance and supervision, which have not been dispelled in spite of reforms initiated by the G20 since 2008, including the creation of an EU regulatory framework under which rating agencies are now supervised by the European Securities and Markets Authority (ESMA).[29] Alternatively, risk weights based on an assessment of creditworthiness by a public entity would raise even thornier challenges of competence, governance, independence and accountability. An automatic setting of sovereign risk weights on the basis of market signals is not a realistic proposition, either, if only because of the potential for market manipulation and market failure. Other mechanistic approaches, e.g. deriving a credit risk assessment from a formula based on macroeconomic and/or macrofinancial aggregates, are unlikely to provide the desired reliability and risk sensitivity. Leaving the risk assessment to the banks themselves, as is now partly the case for IRB banks, would lead to too much dispersion and potential self-serving behaviour.

This issue makes risk-weighting challenging for all asset classes, but is compounded by the intrinsic difficulty of quantifying sovereign credit risk. Such risk is 'lumpy': default events are highly infrequent but tend to have dramatic consequences. As Enria, Farkas and Overby (2016) put it: *"in normal times nobody notices it [sovereign credit risk], in times of stress no capital charge seems to adequately reflect the rapidly changing perception of risk and it becomes highly costly"*. Given this feature, assigning a risk weight is bound to be particularly fraught and contentious.[30]

Second, sovereign risk weights would further increase the procyclical impact of the prudential framework, especially in the current absence of a common safe asset of reference for all euro-area countries. In a situation of sovereign debt stress, a country's perceived sovereign risk would increase, leading to a hike in the risk weight (presumably irrespective of who sets it and how), leading to sales of the country's debt by affected banks that hold it, leading to higher yields further threatening the country's sovereign creditworthiness. A possible response is to smooth the changes in risk assessment (e.g. ratings) over a long period, but this would result in less accurate risk measurements and thus defeat the purpose of risk-weighting.[31]

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[29] See e.g. Hau, Langfield and Marques-Ibanez (2012) for a sobering assessment of the quality of credit ratings in the banking segment, even after the post-subprime-crisis reforms.

[30] The "lumpy risk" problem exists to a lesser extent for large corporates and banks, which is one of the motivations for the proposal to introduce risk-weight "floors", currently under negotiation in the BCBS. This challenge is complex, and the disagreements on how to resolve it give an indication of how difficult it would be to establish a general framework for sovereign risk weighting.

[31] At the extreme, uniform and time-invariant non-zero risk weights would be of highly questionable economic relevance and would be in principle redundant with the requirement of a minimum leverage ratio (see *Annex A*).

Third, sovereign risk weights would create cross-border competitive distortions if they are not simultaneously adopted by all jurisdictions around the world. In those jurisdictions that adopt them, banks would be subject to de facto higher capital requirements than in those that do not, without this difference being related to actual differences in risks. As noted in *Annex A*, several jurisdictions represented in the BCBS appear to be firmly opposed to risk weights. That would make it more contentious and perhaps unadvisable for the European Union (or euro area) to adopt them unilaterally.

Fourth and most important, sovereign risk weights would not address the euro area's home bias problem. Plausibly calibrated risk weights would incentivise a general decrease in banks' sovereign portfolios, but would not be particularly conducive to a diversification of these portfolios away from the home country. They would thus not contribute meaningfully to the policy objective of strengthening the banking union through a reduction of bank-sovereign linkages.[32]

In sum, sovereign risk weights are not an appropriate response to the home bias problem identified in Section *2*, nor should they be viewed as inherently linked to the banking union project. If the ongoing BCBS work on sovereign exposures endorses them, then the European Union may adopt them. But there is no compelling case for their near-term consideration in the euro area outside of the Basel process.

The other cluster of policy options under Pillar 1 is to keep the exemption from risk-weighting for sovereigns, but to constrain the size of the corresponding exposures, or in other words, to address the concentration risk associated with sovereign exposures rather than the credit risk. The Basel framework's general approach to concentration risk is the limitation of large exposures as presented in *Annex A*, capping them at 25 percent of eligible capital; sovereign exposures are currently exempted. Applying this approach directly to sovereign exposures might create a dangerous cliff effect, would be difficult to square with the liquidity coverage requirements which incentivise banks to maintain significant inventories of sovereign debt, and could generate additional difficulties for those banks that play a useful role of market-makers on sovereign debt markets, in which that they act as warehouses for inventories of sovereign bonds that can involve temporary increases up to 5-10 percent of their capital.[33] A smoother approach is thus desirable. This distinction, and a concern for clarity, motivate the choice made henceforth to call the corresponding regulatory instrument 'sovereign concentration charges' in preference to 'soft exposure limits', 'hybrid approach', or 'marginal risk-weight add-ons', as these or similar measures have been referred to in other contexts.[34]

The specific design for sovereign concentration charges detailed in the next section demonstrates that they can be designed so as to have none of the four shortcomings of sovereign risk weights highlighted above:

- The concentration charges can be set independently of any credit risk assessment (as is the case in the existing large exposure limits for non-sovereign debt under the Basel framework, in which the 25 percent threshold is applied uniformly). This removes the problem of risk measurement and assorted governance challenges.[35]

[32] In his post-mortem analysis of the Irish crisis, Frisell (2016) concludes: "Of the various reform options [for the treatment of sovereign exposures], strict exposure limits seems to be the only regulation that would have materially affected Ireland's crisis management."

[33] This order of magnitude is based on the author's conversations with market participants.

[34] The ECB made a similar point when suggesting in its 2016 Financial Stability Review that "any regulatory change [on sovereign exposures] should come about through price effects rather than quantitative restrictions" (ECB, 2016). One may observe, however, that the reference to the 25 percent exposure limit as a "quantitative restriction" is slightly misleading since, even where it applies, banks can increase their exposures by simultaneously adding more capital.

[35] The argument for a non-risk-based sovereign exposure regime is further developed by Bongaerts and Schoenmaker (2017).

- Such non-credit-risk-based concentration charges can be held constant over time and thus have limited or no procyclical impact. If the calibration is set so that the capital charges increase gradually, there would be no cliff effect either, allowing flexibility for banks to have temporarily high exposures if needed, including possibly in times of temporary stress.[36]
- If properly calibrated and especially if applied only inside the euro area (see below), sovereign concentration charges do not practically distort the competitive level playing field with banks from other jurisdictions, because a typical bank's portfolio of euro-area sovereign debt, if reasonably diversified and even assuming its aggregate value reaching a multiple of the bank's capital, would not carry any additional capital charge.
- Last but evidently not least, sovereign concentration charges would create genuine incentives to reduce the currently observed home bias in euro-area banks' sovereign exposures, unlike sovereign risk weights, and would thus meaningfully contribute to breaking the bank-sovereign vicious circle and therefore to the sustainability of the banking union.[37]

In sum, reforms should be based on the fact that concentration risk is the real policy challenge for the banking union, even if credit risk concerns are more politically salient. Of course, national sovereign credit risk could be addressed more consistently if the euro area had a safe asset of reference or eurobonds, but as long as this is not the case, the regulatory pretence of national sovereign bonds as 'safe' from a credit-risk perspective (see *Annex A*) may be viewed as preferable to the alternatives, in the euro area as elsewhere. And unlike with sovereign risk weights, for which it is appropriate for the European Union to await any outcomes of the BCBS discussion, policymakers in the euro area should consider sovereign concentration charges independently from the negotiations in Basel, given the pressing and euro-area-specific nature of their home bias problem.

Having the exemption threshold based on a credit risk measure, as proposed in 2015 by the German Council of Economic Advisers (GCEE, 2015, Box 3), would be severely procyclical and create more problems than it resolves. An alternative concept, in which the exposure thresholds are not credit-risk-based but the concentration charges are, appears to have been considered by the EFC high-level working group of 2015-16 (Dutch Presidency of the Council, 2016). Whereas this hybrid concept would be less problematic than risk-based exposure thresholds, a purely non-credit-risk-based design appears preferable on grounds of both consistency and simplicity.

Sovereign credit risk, of course, should not be left unaddressed. But it can be handled with other instruments. Even if the euro area keeps the pretence of the credit-risk-free nature of its member states' national sovereign debt, in the absence of a global standard for sovereign risk-weighting from the BCBS, there should be mandatory disclosure of them by all banks (as recommended in the next section), proper accounting treatment (including more consistency between the accounting categorisation of sovereign bonds and their inclusion in liquidity coverage requirements – see *Annex A*), and last but not least, adequate stress testing. Specifically, supervisors should keep including scenarios of sovereign debt market stress, and even, in special circumstances if such a possibility becomes less remote, of debt restructuring, in their stress testing, as they have by and large since 2011.

3.3 Geographical scope: euro-area-only rather than EU-wide

First impressions can be equally misleading when it comes to determining the geographical scope of sovereign concentration charges. At first sight, it appears natural to apply the logic of the single market and EEA-wide level playing field, and thus to have any new regulatory treatment implemented uniformly in all member states of the European Union. But as explained in the previous section, the home bias problem is idiosyncratic to the euro area, not the whole EU/EEA. The regulatory treatment

[36] This aspect of the potential impact is further discussed below in Section *5*.

[37] This impact is also further discussed in Section *5*.

of sovereign exposures is shaped to a significant extent by the role of sovereign assets in the execution of monetary policy and more generally as the 'safe asset' of reference in any currency area (*Annex A*). These features justify a differentiated treatment between the multi-country monetary union of the euro area on the one hand, and the other single-country monetary (and currency) areas of the other EU and EEA member states on the other hand.

Sovereign concentration charges calibrated for individual national exposures in the euro area (as opposed to aggregate exposures to all 19 euro-area sovereigns), if applied outside of the monetary union, would excessively constrain banks' overall portfolios of home-currency-denominated sovereign debt. This would not be the case in the euro area itself, given the possibility to diversify exposures across various member states (at most all 19 of them), and would from that standpoint generate a potentially sharp competitive disadvantage for non-euro-area banks. That impact may be tolerable or even painless in EU/EEA countries where banks' sovereign-debt portfolios are already of comparatively limited size, such as Denmark and Sweden – and to a lesser extent the United Kingdom, should it remain in the single market. But it could be disruptive in countries where local banks (including local subsidiaries of foreign banking groups) hold large inventories of domestic sovereign debt, such as Hungary, Poland or Romania.[38] While the introduction of sovereign concentration charges is needed in the euro area to strengthen the banking union, its necessity is far less obvious outside of it, and the related disruption could be hard to justify. Thus, and as with sovereign risk weights, regulatory constraints on sovereign exposures in non-euro countries may be envisaged only in the context of globally agreed measures coming from the BCBS.

A special case is that of non-euro countries of the European Union that may in the future join the banking union using the close cooperation process. Since the arguments against extending concentration charges beyond the euro area are primarily based on the interaction with national monetary policy and a separate currency area, any future close-cooperation countries should be exempted from the mandatory application of sovereign concentration charges. Nevertheless, it could be expedient for those with low sovereign exposures in the banking system, namely Denmark and Sweden, to opt for unilateral compliance with the euro-area sovereign exposures regime if and when they join the banking union, if only to allay any concerns of competitive distortions that may arise (rightly or wrongly) in some euro-area member states. Other close-cooperation countries could keep the exemption, unless they eventually adopt the euro as their currency.

[38] See e.g. Figures 5 and 6 in Gereben (2016).

4. A SOVEREIGN CONCENTRATION CHARGES REGULATION (SCCR): SUGGESTIONS FOR DESIGN, CALIBRATION, TRANSITION

This section outlines a proposed SCCR in order to address the euro area's home bias problem, as suggested in the previous sections, through mandatory (Pillar-1) sovereign concentration charges targeted at euro area banks. As emphasised above, the SCCR should not be viewed as a stand-alone initiative, but as a component of a broader policy package that includes EDIS (further outlined in Section *6*), and consistently with other regulatory and supervisory measures including those to address sovereign credit risk.

This SCCR concept is not wholly novel. It echoes aspects of recommendations made before, e.g. in Enria, Farkas and Overby (2016) and option 5 ('hybrid option') in Dutch Presidency of the Council (2016). But both of these, unlike the SCCR presented here, also include positive risk-weights on sovereign debt no matter how small the exposure, a feature which, as explained in Section 3, is essentially unrelated and entails additional difficulties.[39] The recommendation made here, by contrast, is to focus on sovereign concentration risk. Moreover, to the author's knowledge, this is the first such proposal to be published with a full quantitative calibration proposal.

4.1 General design

The SCCR would be enacted by modifying the CRR, and enforced by the SSM like the rest of the EU prudential framework in the euro area. Its main content would be the introduction of sovereign concentration charges for all banks in euro-area countries that hold concentration euro-area sovereign exposures. To complement these, it would also create monitoring and disclosure obligations for all EEA banks. Specifically:

- A bank's sovereign exposure to a given country is defined as the sum of its exposures to the country's central government, subnational (local) governments, and public sector entities such as state-owned enterprises.[40] Exposures to the country's central bank would be excluded for euro-area countries, since these exposures are related to the monetary policy operations of the Eurosystem. Exposures to international organisations, including EU and euro-area ones, e.g. bonds issued by the European Stability Mechanism (ESM), would also be exempted.
- The sovereign concentration charges modify the calculation of the risk-based capital ratio, for all euro-area banks (SIs and LSIs).[41]
- For each euro-area country, sovereign concentration charges are applied to the relevant portions of the bank's corresponding sovereign exposure, on the basis of the ratio of that exposure over the bank's Tier-1 capital (or sovereign exposure ratio).[42] The SCCR's "exemption threshold" is the

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[39] Enria, Farkas and Overby (2016) acknowledge, immediately after recommending that *"low but positive risk weights should be introduced for domestic sovereigns"*, that it is *"probably not the most important change that is needed in the framework."* They also write: *"The main objective should be to prevent excessive concentration risk toward a specific sovereign issuer, which for banks almost always is the domestic sovereign."*

[40] BCBS (2017b, section 8.1) provides general definitions of these categories for the purpose of calculating sovereign exposures. They would of course need to be specified in more detail in the SCCR. In particular, government-controlled banks may need to be excluded from the scope, are they are treated as bank exposures under the Basel framework. Whether government guarantees should be included would deserve further technical analysis than has been possible for this paper. Also, further discussion would be needed to determine if the best measurement of sovereign exposures is a point-in-time one at the end of the relevant reporting period, or if some form of averaging over the period might be preferable.

[41] For euro-area entities of non-euro-area-headquartered banking groups, the charges would be applied at the level of the highest euro-area entity (e.g. the intermediate parent undertaking). For euro-area-headquartered banks, the charges would be applied at the consolidated group level. There would be no need for application at the level of individual (e.g. country-specific) entities below these.

[42] In the design proposed here, a bank's home country is treated identically as any other euro-area country. This is justified in particular to avoid circumvention, and more broadly to apply a consistent approach to concentration risk. Tier-1 capital

ratio under which the sovereign exposure is exempted from sovereign concentration charges. Any exposure above the exemption threshold is multiplied by a marginal multiplier coefficient (the sovereign concentration charge) that increases with the exposure ratio according to a stepwise schedule such as the one proposed in the Calibration below.

- The sovereign concentration charges are applied on a country-by-country basis within the euro area. The resulting aggregate (sum of exposures above the exemption threshold multiplied by the relevant concentration charges, added up across all relevant euro-area countries) is then added to the bank's risk-weighted assets in the denominator of the capital ratio. Thus, any euro-area sovereign exposure above the exemption threshold results in a marginally lower capital ratio.[43]
- To ensure consistency of treatment, the permanent partial use of the standardised approach for euro-area sovereign exposures to central governments is generalised, with corresponding application of zero risk weights (see *Annex A*). In other words, there is no longer any credit-risk-weighting of such exposures in addition to the application of the sovereign concentration charges, below or above the exemption threshold, even for banks that use the IRB approach.[44]
- The regulatory treatment of euro-area banks' exposures to non-euro-area sovereigns would not be modified by the SCCR. In particular, permanent partial use would still be phased out for any sovereign exposures outside of the euro area, as is currently envisaged under CRR and in the ongoing CRR2 discussion. This would be consistent with the approach outside of the euro area or EU, where the exemption from credit-risk-weighting is limited to sovereign exposures in the home currency area (namely the home country).
- All EEA-headquartered banking groups, including those in the euro area, are required to monitor all their sovereign exposures and publicly disclose any large sovereign exposure (including to non-EEA countries, to central banks, and to supranational entities) above 10 percent of Tier-1 capital, individually and at least on an annual basis.[45]

4.2 Calibration

The following calibration is suggested as a point of reference for the discussion of the SCCR proposal, and evidently as a preliminary one that would require further refined analysis before being enshrined in actual legislation. That analysis may lead to the conclusion that this calibration is either too low, or too high, or too steep. Underlying the calibration suggested below are two complementary considerations:

- First, the SCCR should establish incentives to diversify sovereign exposures to a sufficient extent to break the bank-sovereign vicious circle. As noted at the end of subsection *2.1* above, this aim can be more specifically set as meaning that banks should be able to withstand a major sovereign debt restructuring (or even, depending on the ambition of reformers, two near-simultaneous such events) without their capital being wiped out (or even, again subject to reform ambition, without their capital falling under the minimum requirement, even if additional Tier-1 instruments may absorb losses and capital conservation buffers be consumed). Large sovereign debt restructuring have been observed in the past to imply haircuts (forced losses) of up to 30-50 percent of par value. This suggests that sovereign exposures above 100 percent of Tier-1 capital should be meaningfully disincentivised, and those above 200 percent should be effectively discouraged.
- Second and simultaneously, it is reasonable to err on the side of softness, i.e. introduce sovereign concentration charges at a level that is on the low side of the possible range of values to achieve the above stated objective. The proposal of sovereign concentration charges is unprecedented,

is suggested as the denominator for the calculation of the exposure ratio in order to ensure consistency with the Basel framework.

[43] The same modification would be made for all risk-based ratios, i.e. Common Equity Tier 1, Tier 1, Tier 2, and any other prudential ratio that includes consideration of risk-weighted assets.

[44] The SCCR should establish more refined criteria on whether credit risk weighting may still be applied for subnational government exposures and other public entities, depending on the additional credit risk, in the standardised approach and/or for IRB banks. This aspect of the design has not been explored in any depth for the preparation of this paper.

[45] 10 percent is the threshold that already defines a large exposure in the Basel framework (BCBS, 2014a, paragraph 14).

and experimental in nature, which justifies caution. As Section *5* makes clear, there are many uncertainties as to its specific future impact. It appears therefore preferable to initially set charges at a level that is too low to generate the desired incentives, and tighten them later, rather than to set them too high with more disruptive consequences than intended. If, during the transition period, it becomes clear that these charges are insufficient, then it will always be possible for the EU legislators to amend the SCCR and set them at a higher level.

In addition, it is suggested that banks should be able to hold large sovereign exposures up to the Basel threshold of 25 percent without any sovereign concentration charge, plus an additional margin corresponding to the temporary inventories of sovereign debt that result from market-making activities. This is why the proposed exemption threshold is 33 percent, i.e. any exposure to any euro-area (let alone other) sovereign under 33 percent of Tier-1 capital is entirely exempted from the concentration charges.

Above that threshold, the proposed calibration includes six additional "buckets":

Table 2: Proposed SCCR Calibration

Bucket	1	2	3	4	5	6	7
Sovereign exposure ratio	< 33%	33%-50%	50%-100%	100%-200%	200%-300%	300%-500%	> 500%
Sovereign concentration charge	-	15%	30%	50%	100%	200%	500%

Note: Sovereign exposure ratio = (sovereign exposure as defined by the SCCR) / (Tier-1 capital)

The reason for discrete buckets rather than a continuous mathematical formula that would run a similar curve is to maximise understandability, but is not highly impactful in practice. Each concentration charge only applies within the relevant bucket, i.e. at the margin. The averaged charge on the total exposure is correspondingly much lower. As intended, the impact is rather mild for exposure ratios above the exemption threshold of 33 percent but under 100 percent, and increases gradually above that level, as illustrated in *Table 3*. The impact also varies depending on the bank's Tier-1 capital ratio.[46]

Table 3: Simulated Impact on Capital

Exposure ratio (%)	Marginal SCC	Average SCC	Capital impact (bp) (Tier-1 ratio = 10%)	Capital impact (bp) (Tier-1 ratio = 15%)
50%	15%	5%	-3	-6
100%	30%	18%	-17	-38
150%	50%	28%	-41	-90
200%	50%	34%	-63	-138
250%	100%	47%	-105	-225
300%	100%	56%	-144	-301
350%	200%	76%	-211	-430

Note: Calculations based on Table 2. SCC = Sovereign Concentration Charge. A basis point (bp) is a hundredth of a percentage point.

In practice, the calibration of the last bracket would only have impact on those euro-area banks whose very purpose is to lend to domestic public entities. There are currently four such institutions among

[46] This is largely because of the initial choice to use the ratio of sovereign exposure to Tier-1 capital as the basis for the calculation. All things equal, if a bank has a constant sovereign exposure ratio but with a higher Tier-1 capital ratio, then it also has a higher sovereign exposure, measured e.g. as a share of total assets (or risk-weighted assets). In other words, and all things equal, sovereign exposure ratios tend to be comparatively lower for better-capitalised banks. Thus, it would be incorrect to conclude from *Table 3* that the SCCR penalises well-capitalised banks.

the euro-area's SIs, namely Finland's Kuntarahoitus (Municipality Finance), France's SFIL (Société de Financement Local) and the Netherlands' BNG (Bank Nederlandse Gemeenten) and NWB (Nederlandse Waterschapsbank), plus possibly a few more among LSIs.[47] Rather than facing onerous concentration charges, it is suggested that these institutions may return their banking license, as France's international development agency (Agence Française de Développement) is currently in the process of doing,[48] if the application of SCCR is deemed incompatible with their mandate. By doing so, they would escape the mandatory framework of the CRR and SCCR, and would only be subject to prudential requirements under national law which can be more easily fine-tuned to their idiosyncratic circumstances. This would bring them into the same category as other public-sector financial institutions such as France's Caisse des Dépôts et Consignations, Italy's Cassa Depositi Prestiti, Spain's Instituto de Crédito Oficial, or Germany's Kreditanstalt für Wiederaufbau, whose prudential requirements are set at the national level (in some cases with reference to CRR by choice of the national authorities), and which are not supervised by the SSM.[49]

Table 4 summarises the results of the fictional application of the SCCR thus calibrated on the mid-2016 exposures of all banks included in *Annex B*; the bank-by-bank simulation is shown in *Annex C*. It is important to emphasise that the corresponding impact will not materialise at any time in the future, since banks will have ample time to diversify their exposures (see below, transitional arrangements), and thus reduce or even entirely avoid the corresponding impact of concentration charges during the transition to the new regime. If the exposures are sufficiently diversified, i.e. all brought below the exemption threshold, then the real impact of the SCCR on these banks' capital requirements will be zero. Thus, neither *Table 4* nor *Annex C* should be viewed as impact simulations, but only as fictional exercise to illustrate what would happen to banks if they decided not to modify their behaviour at all during the suggested long transition.

Table 4: Fictional Impact of SCCR calculated on mid-2016 Exposures

Country	Number of banks in sample	Coverage of country's SIs (by assets)	Average Tier-1 capital ratio	Average fictional SCCR impact (basis points)	Average fictional Tier-1 ratio resulting from SCCR
Germany	15	92%	17.1%	-308	14.0%
Belgium	4	65%	18.6%	-307	15.6%
Slovenia	2	80%	20.9%	-175	19.2%
Italy	6	78%	12.4%	-109	11.3%
Portugal	4	85%	11.8%	-82	10.9%
Malta	2	65%	11.8%	-72	11.1%
France	6	93%	14.5%	-63	13.8%
Spain	3	67%	12.3%	-55	11.8%
Ireland	3	89%	16.8%	-52	16.3%
Luxembourg	1	23%	15.0%	-51	14.4%
Austria	6	95%	13.0%	-38	12.6%
Greece	4	100%	18.0%	-31	17.7%
Netherlands	4	95%	18.9%	-20	18.7%
Cyprus	2	58%	15.7%	-14	15.5%
Finland	1	25%	19.7%	0	19.7%
Total	**63**	**83%**	**15.6%**	**-135**	**14.3%**

Source: EBA Transparency Exercise 2016; author's calculations based on the calibration in *Table 2*. N.B. the sample of banks is identical to the one in *Table 1*. Country-level averages are unweighted.

[47] Of these, only SFIL and BNG have reported their sovereign exposures in the EBA's 2016 transparency exercise, as shown in *Annex B*.

[48] See "AFD's banking status might change from Credit institution to "Société de Financement" (Finance Company)", slide 12 of AFD Investors Presentation June 2017, available at https://www.afd.fr/sites/afd/files/2017-08/presentation-afd-investors.pdf.

[49] An alternative option may be to create specific exemptions for such entities in the SCCR, but that would go against the spirit of Pillar-1 legislation.

The proposed calibration of the SCCR may be viewed as not sufficiently constraining. It still allows banks to hold significant domestic sovereign exposures and correspondingly undiversified portfolios of euro-area sovereign debt, without having to add very significant additional capital. As can be seen from *Annex C*, as of mid-2016 the median Tier-1 capital ratio of large euro-area banks was close to 15 percent, and for many banks it has improved since. All but three of these banks could afford to keep their current level of domestic sovereign exposures without finding themselves in breach of a minimum Tier-1 requirement of 8.5 percent after application of the sovereign concentration charges.[50] The three exceptions are BNG and SFIL, which as suggested above may be exempted from SCCR altogether, and Nord/LB, which is only in breach by a negligible 16 basis points. As emphasised above, this choice of a mild calibration is made consciously.

4.3 Transitional arrangements

A smooth and orderly transition to the steady-state application of the new regime is essential to the success of sovereign concentration charges. It needs to be carefully considered and prepared. For at least some euro-area member states, sovereign debt markets currently operate on the widespread perception that domestic banks, or a subset of them, play a role as residual buyers of domestic sovereign debt, at least in the absence of QE. The SCCR could thus change investors' anticipations about market dynamics, both because of the constraints it would introduce on banks, and because of changes it may trigger in the very perception of a specific role for the domestic banking system as "shock-absorber" (see Section *2*). Indeed, the very purpose of the reform is to move towards an environment in which banks' behaviour is no longer determined by their place of headquarters within the euro area, and the euro area is a single seamless space for banks to operate in. Some banks would still act as primary dealers and market-makers for euro-area sovereigns, but the correlation between these roles and the banks' home base would presumably decrease from its current high level. With this in mind, the most significant concerns about the transition are not those about the impact of the SCCR on the banks themselves, but rather on its impact on euro-area sovereign debt markets.

As with the calibration, in order to reassure stakeholders about any undesirable transitional effects, it is proposed that the SCCR err on the side of excessive caution.[51] Three features are suggested to contribute to ensuring a tidy transition: gradual phase-in, grandfathering of outstanding debt, and extensive consultation.

First, the sovereign concentration charges should be introduced gradually. The SCCR's disclosure requirements can come immediately or shortly after the legislation's entry into force, because they do not require major efforts in terms of banks' information systems (a delay could be granted to smaller banks, but should not exceed a year or two at most), and there will be no element of major surprise since most large banks already report their exposures and are included in the EBA dataset. But the sovereign concentration charges could be phased in over a long period, say between five and ten years. The transition period on EDIS could be adjusted to coincide with that of the SCCR, which would send an appropriate signal about the interdependence between the two reforms as highlighted in Section *2*.

There are several possible ways to implement a phasing-in of the SCCR. Again, in order to minimise the risk of excessive early market reaction, and for the sake of simplicity, it is suggested to implement the charges on the different buckets in a gradual manner, starting from the highest one. Thus, say, one

[50] 8.5 percent is the CRR's minimum requirement for Tier-1 capital, on a fully-loaded basis i.e. as applicable from 2019 onwards, including the capital conservation buffer (2.5 percent) but not including surcharges for systemically important banks, additional contra-cyclical requirements in some countries, or Pillar-2 requirements imposed by the SSM.

[51] Even so, it should be obvious that the transition cannot be extended indefinitely. It is likely that the euro area will experience financial crises again in the future, and it is desirable that the transition to the SCCR steady-state be well advanced or completed whenever the next downturn happens.

year after the entry into force of the SCCR, any exposures above 500 percent of Tier-1 capital will be subject to the 500 percent risk charge as in *Table 2*, but lower exposures will be left uncharged. One year later, any exposures above 300 percent of Tier 1 will be subject to the 200 percent charge, and so on. The full impact, including charging exposures just above the exemption threshold, would thus be achieved six years after the SCCR's entry into force.

Second, existing stocks of sovereign exposures should be 'grandfathered', i.e. exempted from the scope of application of sovereign concentration charges. The SCCR would set a cut-off date, e.g. its date of entry into force, and state that any euro-area sovereign debt issued before that date would not be subject to the charges, even though they would be covered by the disclosure requirements. Meanwhile, supervisors would monitor exposures between the date of the announcement and the cut-off, and impose Pillar-2 constraints if needed, so as to make sure banks do not use that period to build excessive additional exposures that would be shielded by the exemption.

Such grandfathering would greatly minimise any risk of market disruption, because the concentration charges would not per se create an incentive for banks to sell any of their existing sovereign bond portfolios, only not to roll them over as they reach maturity.[52] In order to avoid permanent differentiation in the treatment of exposures, a sunset clause might be included, i.e. a bank's residual portfolio of debt issued before the cut-off date would be included in calculations of concentration charges after, say, ten years following the SCCR's entry into force. Given that the share of banks' domestic sovereign exposures whose maturity is longer than ten years is only 11 percent for Italy and 9 percent for Spain,[53] the impact of such arrangements should not be disruptive for these countries' debt markets.

Inevitably, because grandfathering implies that the regulatory treatment of debt would be differentiated by date of issuance, there would be a limited 'juniorisation' effect on newly issued debt. The detrimental impact on sovereign debt markets, however, can be expected to remain limited, if only because debt-market benchmarks will be based on the new debt and not the old grandfathered issuances. This effect can thus be seen as a "necessary evil", and is unlikely to be significant enough to offset the significant benefits of grandfathering in terms of market expectations of an orderly transition.

Third, the entire community of market participants should be appropriately prepared for the introduction of sovereign concentration charges. This involves both careful communication and extensive consultation. To avoid undesirable market impact, all involved policymakers should be particularly cautious about professionally managing their public communication about the project, and to avoid the 'Deauville' kind of ill-prepared announcement. Once a legislative proposal takes shape, it will also be worth including an appropriate period of consultation, both to educate investors and other participants about the retained approach in advance of its finalisation and implementation, and to collect their suggestions for possible improvements. In the suggested timetable, by which the key political decisions on SCCR (and EDIS) are made in 2018, the expected continuation of the ECB's QE program provides an additional protection against any risk of disorderly market reactions that may result from a misunderstanding or miscommunication of the reform effort.

[52] Grandfathering has been effective in other past transitions, and is recommended for the regulatory treatment of sovereign exposures in the concluding section of Lenarcic, Mevis and Siklos (2016).

[53] Based on the EBA data for the 2016 stress test (data as of end-2015). The shares of long-maturity debt are higher, however, for Germany (24 percent) and much higher for France (45 percent). This might justify a longer period before the sunset clause applies.

4.4 Safe asset options

Since euro area sovereign debt markets started experiencing disruption in early 2010, a number of proposals have been made to establish a 'safe asset' as a reference for the entire monetary union, by providing it with attributes of guarantees and/or seniority, often by using structured finance techniques. Prominent examples include the Blue Bond proposal (Delpla and von Weizsäcker, 2010) and the European Safe Bonds or ESBies (Brunnermeier and co-authors, 2011). This line of thinking has been echoed by EU institutions. For example, the latest iteration of the ESBies proposal was published by the ESRB as a working paper (Brunnermeier and co-authors, 2016). More prominently still, the policy document released together with the European Commission President's latest State of the Union address includes the pledge to present, before end-2018, *"an enabling framework for the development of sovereign bond-backed securities to support further portfolio diversification in the banking sector"* as well as *"with a 2025 perspective (...) [e]xploratory work for the possible development of a euro area safe asset"* (Juncker and Timmermans, 2017).

It is anyone's guess whether these initiatives will come to any fruition, and this paper does not assess them. It is important to observe, however, that the SCCR proposal is made independently of any 'safe asset' concept. In other words, sovereign concentration charges can be implemented and be fully relevant even if the discussion on safe assets does not yield any result. If safe assets are implemented, conversely, it will be easy to incorporate them into the SCCR framework, depending on the specific safe-asset design adopted, either by exempting them entirely from concentration charges (as is suggested for ESM bonds), or by acknowledging their lower risk profile through a higher exemption threshold than for national sovereign exposures.[54]

This point underlines a key feature of the SCCR proposal, namely that it entails neither forced buying of any sovereign securities, nor any supranational guarantee. The SCCR would incentivise banks to diversify their sovereign bond portfolios, but it is not at all prescriptive as to which bonds to buy (if any). Thus, the SCCR proposal achieves the portfolio-diversification aims inherent in several safe-asset designs, but in a manner that is 'light-touch' and market-driven, compared with other proposals.

[54] Conversely, the success of safe assets may depend on reform of the regulatory treatment of sovereign exposures, again depending on the specific safe-asset concept considered.

5. PRELIMINARY SCCR IMPACT ASSESSMENT

This section discusses the possible impact of the previous section's SCCR proposal along various dimensions. There is no established methodology that would allow for a predictive modelling of the market impact of a proposal of this nature, even assuming vastly greater resources than were available for the preparation of this paper. The most quantifiable aspects, such as the volume of bond portfolios that banks should sell or (especially if a grandfathering clause is included) stop rolling over to avoid capital charges, are not necessarily the most significant ones (see below, *Table 5*). Thus, the approach adopted here is to map as many as possible dimensions along which the proposed SCCR may impact, and to provide a mostly descriptive and qualitative preliminary assessment of what that impact may be.

The existing literature is not of direct use to assess the impact of the SCCR proposal. For example, several studies on the market impact of reforms of the regulatory treatment of sovereign exposures were published in 2016, e.g. Echevarria Icaza and Valero Lopez, 2016; Gereben, 2016; Lanotte and co-authors, 2016; Lenarcic, Mevis and Siklos, 2016. But these authors look only at positive risk weights and 'hard' exposure limits (as in the Basel framework for non-sovereign large exposures), both of which are very different from the proposed SCCR, and much more disruptive in terms of potential market impact.

5.1 Impact on banks

Sovereign concentration charges as suggested in the previous section are likely to result in a reduction of the current levels of home bias, but not its complete disappearance given the mildness of the calibration. It can reasonably be expected that, in the steady state, most banks will bring their sovereign exposure to each (including the home) euro-area country under 150 percent of their Tier-1 capital; but how much lower, and at what pace, is anyone's guess given the largely unprecedented nature of the proposed regulatory instrument. As for banks whose exposure ratios to any euro-area sovereign are already under 100 percent (see *Annex B*), it is not certain that the SCCR will have any impact of their future behaviour.

The proposed SCCR would not force banks to hold sovereign debt of all euro-area member states. A typical euro-area bank with total euro-area sovereign exposures of 150-200 percent of its capital could avoid any additional charges by diversifying into 5-6 sovereigns, or face only negligible charges by diversifying into 3-4 sovereigns. A consequence of such diversification is that banks should better understand the risks associated with a few sovereigns other than their home country, with corresponding costs of in-house and/or external analysis and research.[55] These costs would be negligible for all but the smallest banks. Moreover, a more active management by banks of the risks associated with their sovereign exposures can be viewed as being in the interest of euro-area financial stability, of effective market discipline, and of the banks themselves.

Of course, by incentivising banks to diversify their sovereign exposures within the euro area, one impact of the SCCR will be that, all things equal, a future sovereign debt restructuring will have greater direct financial impact on banks outside the defaulting country than is currently the case. Such potential 'contagion' is intentional and beneficial. The impact will be more dispersed and less disruptive than with the current strong bank-sovereign linkages at the national level. In the same vein, it is likely that even in situations of stress, future correlations of sovereign debt spreads across euro-area countries will be lower than those observed at the peak of crisis in 2011-12. This is because reforms adopted since 2012 and potentially in the near future, not least the SCCR-EDIS combination, will make it less likely that future crises will be driven by fears of a break-up of the euro area, as was the case six years ago and as explains much of the observed past correlation.

[55] Since banks already monitor their large exposures, the additional costs generated by the SCCR in terms of information systems and back-office functions can be expected to be very small.

In principle, smaller banks (e.g. LSIs) should be treated by the SCCR identically as larger ones, because they contribute similarly to the bank-sovereign vicious circle. Further analysis is needed, however, of the possible cost impact, for example in terms of joining clearing and settlement platforms for transactions on sovereign debt other than domestic. If such costs were to justify an exemption, it would presumably be only for very small banks and not for all LSIs.

The SCCR will not have obvious impact on most banks' prudential ratios. Assuming diversification so that each euro-area exposure is under the exemption threshold, sovereign concentration charges will not bite, and the risk-based capital ratio will be unaffected. As further discussed below, there is no obvious reason to expect the SCCR to mechanically lead to an overall reduction (or, for that matter, increase) of a bank's aggregate exposures to euro-area (let alone other) sovereigns. If these aggregates are unmodified by the effect of the SCCR, then so will be the bank's leverage ratio, LCR and NSFR.

The sovereign exposure diversification will erode, though not as of itself eradicate, the notion of nationality of banks in the euro area. It will make it more natural for banks that share the same business model, strategy and operational performance to have the same risk profile, even if they happen to be headquartered in different member states of the euro area. This is exactly as intended. Ultimately, the aim of the banking union is to erase intra-euro-area borders as far as the banking system is concerned. Among other things, the SCCR could thus also contribute to creating stronger incentives for the geographical diversification of the business footprint of at least some euro-area banks through cross-border banking and internal growth, as well as mergers and acquisitions. As observed in Section *2*, this in turn would powerfully reduce the indirect (macroeconomic) bank-sovereign linkages and thus further strengthen the euro area's resilience to future crises.

The proposed design and scope of the SCCR would not create additional divergence of competitive conditions between euro-area banks and other banks within the EU/EEA, and will thus not undermine the internal market for banking services. The differentiated treatment between euro-area and other banks is justified by the unique situation of the euro area, in which banks can hold sovereign exposures to several countries with no associated currency risk. Since the proposed calibration creates no practical limit on any bank's aggregate exposure to all euro-area sovereigns (as long as there is sufficient intra-euro-area diversification), it will not put euro-area banks at a competitive disadvantage (or advantage) in comparison with non-euro-area ones.[56] Furthermore, the SCCR framework provides flexibility for each bank to adjust its pattern of diversification to suit its specific features, e.g. in terms of asset-liability management and risk appetite.

The argument that banks need to build sovereign exposures to the same country in which they do business, sometimes advanced in policy discussions, is not compelling. If that argument had substance, for example, a similar behaviour would be observed in the United States, with local banks building inventories of the debt of the state or municipality in which they are active. Even though no in-depth research on this issue was available for the preparation of this paper, this does not appear to be the case. Furthermore, with EDIS and a more integrated EU financial system (including the impact of the ongoing policy of Capital Markets Union), euro-area banks' funding conditions can be expected to become much less correlated with those of their home countries in the future.

[56] Of course, further intra-EU convergence of regulatory treatment can be achieved if more countries adopt the euro as their currency. By making the euro area more stable and resilient, the SCCR (combined with EDIS) will probably enhance the attractiveness of euro membership for currently non-euro countries, but this will only be an indirect and presumably not immediate effect.

5.2 Impact on sovereign debt markets

The aim of the SCCR is prudential. It is to reduce sovereign concentration risk and the home bias in banks' sovereign exposures, not to reform the euro area's policy framework for sovereign debt issuance, let alone fiscal management. Nevertheless, its implementation will inevitably have some impact on sovereign debt markets, since it alters the incentives of domestic banks which are significant players in the market for the debt of at least some euro-area member states.

As illustrated in *Figure 2*, domestic banks currently account for typically 15-30 percent of outstanding holdings of euro area sovereign debt, with variations across countries. In other words, most of the amount outstanding corresponds to other market participants, whose incentives will not be directly affected by the SCCR.[57] In a baseline scenario, the SCCR would incentivise euro-area banks to buy less domestic sovereign debt and more sovereign debt from other euro-area countries than their home base, leaving their aggregate holdings of euro-area sovereign debt broadly unchanged. From that perspective, the overall balance of supply and demand should not be dramatically altered, implying little or no price (or liquidity) impact in a steady-state equilibrium.

But there are considerable uncertainties about the exact way sovereign debt buying patterns will evolve, mirroring the lack of a widely accepted understanding of what caused the currently observed home bias within the euro area. The previous paragraph's view ignores differences in sovereign debt demand dynamics on a country-by-country basis. Because the SCCR is not prescriptive on which bonds banks should buy (if any) to diversify, it is likely that some member states will be more favoured as "second-best" (after the home country), "third-best" and so on, than others. *Annex C* suggests this is already the case, to a limited extent. It could have structural impact on prices. All things equal, debt issued by larger euro-area countries may benefit from a preference for more liquid asset pools. Conversely, the fact that the exemption threshold and other bucket limits are identical for exposures to (and banks from) all member states may generate a comparative surplus of demand for debt from smaller issuers, since the exposure to larger countries may be more quickly "saturated". Altogether, it is hard to predict in which direction the cumulative effect will go.

It is similarly difficult to forecast how sovereign debt demand dynamics under SCCR will be differentially affected by a euro-area country's perception of credit risk. As *Table 1* and *Annex B* illustrate, there is no obvious correlation between a country's perceived credit risk and its banks' domestic sovereign exposure ratio or home bias. When compelled by the SCCR to diversify away from the home country, a bank may opt to buy sovereign debt from one or several other member state(s) with a similar risk profile, or alternatively seek a 'safe haven' in sovereign debt issued by one or several member state(s) perceived as low-credit-risk. Different banks may opt for different diversification patterns for idiosyncratic reasons. Also, the mandatory shift of IRB banks to the standardised approach (i.e. zero credit-risk weighting) for their euro-area sovereign exposures (see *Annex A* and Section *4*) may incentivise some of these banks to buy more debt issued by member states with a higher perceived credit risk and correspondingly higher debt yield. Altogether, and taking into account the incentives created by the LCR, the zero-risk-weighting of euro-area sovereigns, and the lack of currency risk inside the euro-area, there is no obvious reason for which the introduction of the SCCR should lead to a decrease in euro-area banks' aggregate euro-area sovereign exposures, whether this is viewed as a good thing or not.

The shifts in the distribution of sovereign debt ownership associated with the incentive to diversify will definitely not be of such magnitude that they would be impractical to absorb. *Table 5* illustrates this, by providing orders of magnitude of the possible SCCR-induced shifts in sovereign exposures, adding up all of the observed banks' sovereign exposures above the thresholds of, respectively, 33 percent and 100 percent of Tier-1 capital. For example, for all French banks in the sample to bring

[57] These include insurers, pension funds, and other non-bank financial institutions, for which the applicable prudential and regulatory framework would not be modified by the SCCR.

their domestic sovereign exposure ratio to Tier 1 below 33 percent, and all things equal, they would need to reduce their aggregate exposure to the French sovereign by EUR250 billion. But banks in other euro-area countries would similarly reduce their own domestic sovereign exposures by EUR593 billion, providing ample space to absorb the gap, especially given the long transition. These orders of magnitude should be interpreted with the appropriate caution, however, especially as the observed sample of EBA-reporting banks does not represent an identical share of all countries' banking systems, let alone of banks' aggregate domestic sovereign exposures in different countries.

Table 5: Domestic Sovereign Exposures Potentially Impacted by the SCCR

Country	Number of banks in sample	Coverage of country's SIs (by assets)	Total domestic exposures of domestic banks in sample	Domestic exposures of domestic banks above 33% of Tier 1	Domestic exposures of domestic banks above 100% of Tier 1
France	6	93%	349,773	249,763	119,467
Germany	15	92%	301,538	242,432	155,080
Italy	6	78%	179,626	145,040	74,820
Spain	3	67%	135,978	92,143	23,634
Belgium	4	65%	51,844	43,675	27,091
Netherlands	4	95%	48,498	14,744	0
Portugal	4	85%	25,105	19,772	11,502
Austria	6	95%	22,511	13,243	2,596
Greece	4	100%	19,676	9,463	1,175
Ireland	3	89%	15,498	9,061	686
Cyprus	2	58%	2,779	291	0
Slovenia	2	80%	2,650	2,045	816
Finland	1	25%	1,755	0	0
Malta	2	65%	1,335	1,142	772
Luxembourg	1	23%	731	242	0
Total	**63**	**83%**	**1,159,298**	**843,055**	**417,638**

Source: EBA Transparency Exercise 2016; author's calculations. The sample of banks is the same as in *Table 1*.

Much will also depend on the behaviour of the sovereign issuers themselves. Since some of them will be less able to rely on a quasi-captive pool of residual buyers among their domestic banks, they may need to become even more proactive in courting international (including non-bank) investors as a permanent source of demand for their bonds.

The increased market discipline associated with the SCCR implies that, all things equal, price movements could become more volatile in some, though not all, situations of sovereign debt market stress. This impact should not be viewed as altogether bad. In the past, the dampening of price movements resulting from some domestic banks' purchases has occasionally delayed the fiscal and/or structural adjustment that was needed to avert further sovereign debt market stress, thus ultimately contributing to instability. The impact of the SCCR could also encourage countries to be more proactive in requesting a flexible or precautionary credit line from the ESM and/or IMF. Most importantly, however, all things are not equal. As emphasised in Section *2*, the potential shock-absorbing capacity that comes with a specific role of domestic banks in sovereign debt markets pales in comparison with the destabilizing impact of the bank-sovereign vicious circle as was revealed in the crisis, most dramatically in 2011-12. Specifically, the combination of SCCR and EDIS would decrease the probability of default of euro-area sovereigns by reducing their contingent liabilities in major banking crisis scenarios. It can be securely expected to make sovereign debt markets more stable, not less, in future crisis situations.

As for the transition, the recommended combination of proactive communication and consultation of market participants, grandfathering of already issued sovereign debt, and reasonably long phase-in, possibly complemented by the later stages of the ECB's QE, should allay any fears of disruptive "front-loading" of the steady-state requirements by investors. Such front-loading was observed particularly with the introduction of the higher capital requirements of Basel III, but this also corresponded to a market consensus (independently from policy changes) that the previous levels of capital were too low for the banks' own good.[58] Moreover, the Basel III front-loading was about the highly familiar risk-based capital ratio, in view of which it was perhaps natural for market participants to project themselves into the "fully-loaded" post-transition future. In the case of the SCCR, it would be about an entirely new regulatory paradigm, to which there would probably be only muted if any knee-jerk market response.[59] From this standpoint, the apt benchmark would not be the Basel III capital tightening, but rather the introduction of the LCR, NSFR, or additional requirements for Total Loss-Absorbing Capacity (TLAC), for which no front-loading has been observed. Specifically, banks would have little reason to sell high-yielding sovereign securities that they acquired during the crisis and that they can keep holding to maturity.

Altogether, the fears in some countries that the announcement or implementation of an SCCR would trigger an episode of volatility on sovereign debt markets, while understandable, are not well grounded on facts – even for countries with high debt levels and lingering perceptions of vulnerability such as Italy or Portugal. The announcement of EDIS, which as emphasised throughout this paper should be fully-fledged and inseparable from that of the SCCR, would be a major positive factor for such countries' perceptions of future financial stability. Of course, other events may affect market dynamics, prices and volatility, and many vulnerabilities still exist in the euro area. But the suggested reform package can be safely expected to strengthen, not weaken, the sovereign debt markets of all its member states.

5.3 Overall impact

The banking union, together with its complement the EU capital markets union, is a positive proposition for both growth and stability in Europe, with direct impact in the euro area and positive spillovers in the rest of the European Union and EEA. The proposed combination of SCCR and EDIS would represent a decisive step forward for the banking union, making it practically irreversible and structural. It can thus be expected to have a positive impact on all member states' economies.[60]

The current outlook in the euro area is of a broad-based recovery that appears likely to be sustained over at least the next 18-24 months. Should a downturn be triggered by unforeseen events, there would still be sound arguments to move forward on the proposed reform to strengthen the euro area and its banking union. With the cautious proposed approach for calibration and transitional arrangements, the introduction of the new regime appears feasible under any plausible scenario of economic and financial conditions, unless an unexpected and radical change in the euro area's circumstances would dramatically shift the entire consideration of reform priorities.

[58] The market environment at the time of the introduction of Basel III in the early 2010s was an unusual one, in which banks were particularly keen to be viewed as best-in-class in terms of capital levels.

[59] An introduction of sovereign risk-weights would presumably present more of a risk of front-loading, an additional ground for caution about them besides the arguments presented in Section 3.

[60] This does not imply, of course, that every single economic actor and market participant in the euro area would benefit from the reform. As with any ambitious reform, some special interests may be opposed to it for a variety of reasons, as briefly examined in the next section.

6. CONCLUSION: SCCR, EDIS, AND THE 2018 DISCUSSION OF EURO-AREA REFORM

As observed in Section *2*, the next 18 months represent an exceptionally propitious alignment of conditions for euro-area reform. In this context, an agreement on EDIS as initially proposed by the European Commission (i.e. with unconditional full mutualisation at the end of a time-limited transition period), and simultaneously on sovereign concentration charges such as this paper's SCCR proposal, is achievable, though by no means a foregone conclusion. It would represent a major step from the current 'timber-framed' to a 'steel-framed' banking union and to a significantly more resilient euro area.

The SCCR and EDIS would be at the core of a banking union package that would balance risk-sharing with market discipline, made possible by the risk reduction achieved over recent years and still ongoing. This package should include further market-discipline-oriented and risk-sharing-oriented initiatives to strike an appropriate balance between the need for sound incentives and the build-up of a European safety net to replace national safeguards.

Market-discipline items, in addition to sovereign concentration charges, could include:

- a revision by the European Commission of its Banking Communication of 2013 to tighten state-aid control guidelines, and specifically to restrict the future scope for government guarantees of bank bonds and for public bail-out of senior unsecured creditors of failing banks;
- the timely introduction of mandatory, well-designed Minimum Requirements for own funds and Eligible Liabilities (MREL), and TLAC for the largest banks;
- a revision of the SRM Regulation to make the SRB directly responsible for the execution of resolution schemes, not just for their design and approval;
- an explicit long-term vision for a single bank insolvency regime in the banking union area, with ambitious near-term efforts to harmonise bank insolvency law;
- the generalised use of IFRS for public financial statements of all banks in the banking union, including LSIs;[61]
- more effort to bring EU legislation (i.e. CRR) into full compliance with the Basel framework.

Risk-sharing items, in addition to a full EDIS, could include:

- a backstop to both the SRF and the Deposit Insurance Fund created as part of EDIS, presumably to be provided by the ESM;
- an accelerated phasing-out of any geographical ring-fencing of capital and liquidity within the euro area;
- an increase in the maximum financial intervention capacity of the ESM, currently capped at EUR500 billion;
- a revision by the ESM of its 2014 guideline to allow itself to participate in precautionary recapitalisations;
- a possibility for the ESM to provide guarantees for specific categories of new bond issuances by banks in situations of market stress, substituting for national government guarantees of bank bonds, as practiced in numerous member states in the past decade.

These reforms would also create powerful incentives for the emergence of more pan-European banks, thus contributing to the reduction of indirect (macroeconomic) bank-sovereign linkages as highlighted in Section *2*. They should also be complemented by other dedicated efforts to reduce the current obstacles to cross-border lending and cross-border bank consolidation. For example, future stress tests should better acknowledge the advantages of geographical diversification of banks'

[61] In the United States, where the presence and influence of small local banks is generally greater than in the euro area, all banks no matter how small are required to prepare their financial statements using U.S. Generally Accepted Accounting Principles. Similar arrangements exist in almost all developed jurisdictions outside of the European Union, and also in some EU member states such as Italy.

business within the euro area as mitigating the risks resulting from local or national downturns. Assertive competition policy should ensure that any existing national barriers to entry are reduced or dismantled. Governments that still own equity stakes in significant banks should consider their sale, to allow for a more market-driven process of capital allocation within the banking system itself, which is currently impeded by idiosyncrasies in many banks' ownership and governance patterns (Véron, 2017).

Obviously, the 2018 debate on the future of the euro area's Economic and Monetary Union will be about more than banking union alone. The capital markets union is a natural complement to the banking union, and needs as a catalyst a stronger and more independent ESMA.[62] In the more politically prominent area of fiscal arrangements, a lot of the recent public debate has revolved around the concepts of a euro-area budget and finance minister; the transformation of the ESM into a European Monetary Fund, presumably implying a broader scope of intervention and more decision-making autonomy (see Sapir and Schoenmaker, 2017); a sovereign debt restructuring mechanism; and/or the promotion or creation of euro-area 'safe assets' as mentioned at the end of Section 4. The strengthening of the banking union with the SCCR, EDIS, and complementary initiatives as suggested above can thus be viewed as part of a broader effort to improve the policy infrastructure of the euro area – even though, at the time of writing, it still remains to be seen how much policy substance might follow headline-grabbing proposals in the area of fiscal and structural policies, some of which have met with a fair amount of scepticism from analysts (see e.g. Gros, 2017). An additional area of reform, less commonly debated but well worth considering in order to reinforce market (and policy) discipline in fiscal management, would be a comprehensive redesign of the European Statistical System.[63]

All these possible reforms reinforce each other in various ways, but the SCCR-EDIS package stands among them as uniquely consistent, feasible and transformative for the euro area. More ambitious steps towards fiscal union, such as a genuine pooling of taxation authority by euro-area member states, would be even more significant, but their likelihood does not appear high in the foreseeable future, for both political and legal reasons. Thus, the combination of SCCR and EDIS should be the core focus of attention of policymakers. Given the associated politics, it appears unrealistic to expect one to be adopted without the other.[64] By contrast, the joint endorsement by EU leaders of both the SCCR and EDIS is well within the realms of possibility before the end of 2018, even though their legislative finalisation might extend beyond that date.

There will be resistance to such a proposition. Government debt management offices, in all member states and not only the southernmost ones, can be safely expected to be less than enthusiastic about a reform that would remove the role of domestic banks as residual buyers of their issuance. Some (though far from all) segments of the European banking sector view EDIS as detrimental to their competitive position; others see that the flipside of the SCCR would be the removal of implicit government guarantees that currently benefit them; and bankers are generally tepid at best about any new regulatory initiatives. The banking union generally disrupts established pattern of banks' behaviour and political economy, and neither the SCCR nor EDIS would be exceptions. Many players will be tempted to delay reform by arguing, inaccurately as explained in Section 3, that it would

[62] A basis for this, to be further built on, is the European Commission's recent proposal: European Commission press release, "Creating a stronger and more integrated European financial supervision for the Capital Markets Union", Brussels, 20 September 2017, available at http://europa.eu/rapid/press-release_IP-17-3308_en.htm.

[63] Such an effort should draw lessons from the troubling case of Andreas Georgiou, the former Greek statistical official who is the target of multiple prosecutions for having complied with European statistical rules and principles. Beyond the specific situation of Greece, the Georgiou case suggests a need for much more ambitious reform than has occurred since 2009 to prevent misreporting of public and national accounts by euro-area countries in the future. See e.g. Jim Brunsden, Arthur Beesley and Kerin Hope, 'Eurozone officials warn on Greece statistics trial 'farce'', *Financial Times*, 3 August 2017, available at https://www.ft.com/content/3d213384-77b1-11e7-90c0-90a9d1bc9691.

[64] As Section *2* discussed, there would also be significant policy downsides to the adoption either of the SCCR without EDIS, or of EDIS without SCCR.

distort the international playing field and that nothing should be done unless a consensus emerges in Basel.[65]

Such resistance can and should be overcome. The combination of (full) EDIS, SCCR and possible complementary reforms as listed above in this section, would be beneficial to all member states, and to the euro area and the European Union as a whole. The introduction of stronger market discipline should satisfy countries or parties concerned about the moral hazard that might arise from more risk-sharing. The creation of an effective European safety net should allay the fears of those most concerned about financial instability. Europe's leaders currently have enough political capital to forge an agreement that will be advantageous to all but a limited set of special interests.

The reforms suggested here would not mean the completion of the banking union project. More will need to be done to eliminate lingering bank-sovereign linkages, e.g. by reforming consumer protection, tax, housing finance and pension finance frameworks, so that a bank's 'nationality' within the euro area becomes increasingly irrelevant. This will inevitably take a long time, as it did in other cases of large-scale banking sector integration such as in the United States. Even with this in mind, a 'steel-framed' banking union combining European deposit insurance and sovereign concentration charges would be a major step forward for European integration. It is well worth significant attention and effort from Europe's policymakers and leaders.

[65] On the contrary, euro-area leadership in introducing the SCCR can be expected to at least partly unlock future discussions about the regulatory treatment of sovereign exposures in the BCBS.

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ANNEX A: CURRENT REGULATORY TREATMENT OF SOVEREIGN EXPOSURES

Sovereign exposures play a unique role in the operation of banks, which explains why their regulatory treatment presents unique challenges. Sovereign debt has reference status. This is not only a matter of regulation or even public policy: sovereign debt is labelled 'risk-free' in mainstream financial asset pricing models, in which the 'risk-free rate' is typically that of a sovereign bond of the relevant maturity. But equally evidently, it is misleading to view sovereign debt as safe, or even just safer, than all other assets. Sovereign defaults are as old as sovereign debt itself. They may occur on domestic as well as foreign debt, and in 'advanced' as well as 'emerging' economies, as illustrated by Greece's default of March 2012. Even so, the pretence of a risk-free asset can be useful for the purpose of many aspects of financial management. There result a number of trade-offs that prudential regulators and other financial rule-makers have addressed in an ad hoc manner. Given this tension between the existence of sovereign credit risk and the useful pretence of a risk-free asset, it is difficult to imagine a fully consistent regulatory treatment of sovereign risk in any jurisdiction.

In the euro area, the tension is exacerbated by the impossibility of addressing sovereign or macroeconomic weaknesses through devaluation and by the lack of direct control of monetary policy by national governments, even in extreme crisis scenarios.[66] One consequence of monetary union is thus that the likelihood of a euro-area country's sovereign default, though small, may be viewed as higher than for a country with similar features but its own currency. The tensions and trade-offs inherent to the regulatory treatment of sovereign exposures are therefore different in the euro area from the rest of the EU/EEA and other jurisdictions. Nonetheless, until now the European Union has not opted for a different regulatory treatment of sovereign credit in the euro area from what it is in non-euro member states.

A.1 Risk-based capital ratio

The risk-based capital ratio underpins much of the prudential regulatory framework in the European Union as elsewhere. It is defined in EU legislation, currently the CRR, with reference to the applicable international standard, namely the Basel III accord of 2010 (BCBS, 2010) which itself is partly built on the previous Basel II accord of 2004 (BCBS, 2004). Basel II defines a *"standardised approach"* for credit risk assessment, which relies largely on ratings from credit ratings agencies for risk measurement, and an *"internal ratings-based"* (IRB) approach, in which banks are authorised to rely on their own risk assessments based on internal models.

Under the standardised approach, Basel II sets a risk-weight of zero for sovereigns rated AA- or better (BCBS, 2004, paragraph 53).[67] It further states (paragraph 54) that *"At national discretion, a lower risk weight may be applied to banks' exposures to their sovereign (or central bank) of incorporation denominated in domestic currency and funded in that currency."* This zero-risk-weighting option for domestic exposures thus applies to all jurisdictions irrespective of their credit rating, and is preserved in Basel III. Enria, Farkas and Overby (2016) observe that *"While the origins and reasons behind this approach has to our knowledge never been articulated clearly [by the BCBS], it is reasonable to assume that the origin of the zero risk weight is to be found in the fundamental role sovereign securities play in monetary policy operations – a role which has evolved over time, but has remained central for a long time across all relevant jurisdictions."*

[66] All EU member states are covered by the treaty-enshrined prohibition of monetary financing (Article 123(1) of the Treaty on the Functioning of the European Union), but this discipline is much more credible for euro-area member states than for non-euro ones.

[67] In this, Basel II differs slightly from the original Basel I accord (available at http://www.bis.org/publ/bcbs04a.pdf), where the key distinction for the assessment of sovereign creditworthiness had been between member of the Organisation for Economic Co-operation and Development and other countries.

The Basel framework also specifies that those banks which are authorised by supervisors to use the IRB approach should in principle use their own internal risk ratings for sovereigns and corresponding risk weights.[68] Paragraphs 256 to 260 of Basel II, however, specify the conditions under which IRB banks can use the standardised approach for some assets and their own internal ratings for others, a practice known as 'partial use' of the standardised approach.

EU legislation has gone further by stating that *"Exposures to Member States' central governments, and central banks denominated and funded in the domestic currency of that central government and central bank shall be assigned a risk weight of 0 %"* (CRR, article 114(4)).[69] For euro-area banks, CRR thus implies that all exposures to euro-area sovereigns are permanently risk-weighted at zero in the standardised approach. Moreover, article 150 of CRR grants a general and permanent authorisation of *"permanent partial use"* exempting sovereign exposures from any risk-weighting for banks using the IRB approach. As this goes well beyond the above-mentioned conditions set in Basel II for partial use, the permanent partial use of the standardised approach as enabled by CRR is a major reason why the Regulatory Consistency Assessment Programme of the BCBS has found EU legislation to be *"materially non-compliant"* with Basel III (BCBS, 2014b, pages 38-39).[70]

Nevertheless, some national supervisors in the European Union have decided not to grant such flexibility to banks within their jurisdiction and thus to ask IRB banks to assign positive risk-weights to EU sovereign exposures. On the basis of publicly available information, this is the case of Belgium and Sweden (e.g. Enria, Farkas and Overby, 2016, page 66).[71] Even so, analysis published in 2013 by the European Banking Authority (EBA) suggests that the IRB approach in this area leads to *"significant – and difficult to justify – variation in capital requirements across banks"*, concluding that *"[t]he benefits of the internal modelling approach (...) never materialised for sovereign exposures"* (Enria, Farkas and Overby, 2016).

[68] Unlike for corporate or bank exposures, Basel II does not set a minimum probability of default for sovereign exposures under the IRB approach (paragraph 285).

[69] Furthermore, the CRR adds a time-limited exemption for exposures in non-domestic currency: *"Until 31 December 2017, the same [zero] risk weight shall be assigned in relation to exposures to the central governments or central banks of Member States denominated and funded in the domestic currency of any Member State as would be applied to such exposures denominated and funded in their domestic currency"* (CRR, article 114(5)). Under article 114(6) of CRR, this temporary exemption is then gradually phased out over 2018 and 2019, a transition period that may be extended subject to ongoing legislative discussions at the time of writing.

[70] In December 2013, following earlier controversies with EU authorities over the interpretation of the relevant provisions of the Basel framework (e.g. Hannoun, 2011; Gillian Tett, "Subprime moment looms for 'risk-free' sovereign debt", Financial Times, 3 November 2011, available at https://www.ft.com/content/88151ed6-0639-11e1-a079-00144feabdc0), the Bank for International Settlements (BIS) published an exposition of the BCBS approach to the treatment of sovereign exposures in its Quarterly Review and specifically reposted the corresponding text on its website, at http://www.bis.org/publ/qtrpdf/r_qt1312v.htm. The following section adds clarity to the debate about permanent partial use in CRR: *"The Basel framework is based on the premise that banks use the IRB approach across the entire banking group and across all asset classes. It recognises, however, that it may not be practicable for banks to implement the IRB approach across all asset classes and business units at the same time. Therefore, it allows national supervisors to permit their banks to phase in the approach across the banking group. And, subject to strict conditions, it also allows them to keep some exposures in the Standardised Approach indefinitely. For this to be the case, however, these exposures have to be in non-significant business units or in asset classes that are immaterial in terms of size and perceived risk. As a result, banks adopting the IRB approach are expected, over time, to move all material exposures to the IRB framework. [...] In the European Union (EU), authorities have allowed supervisors to permit banks that follow the IRB approach to stay permanently on the Standardised Approach for their sovereign exposures."*

[71] Lenarcic, Mevis and Siklos (2016) also observe that "in October 2015, the Swedish F[inancial] S[ervices] A[uthority] announced that it would require its four largest banks to apply positive risk weights on their sovereign exposure".

A.2 Exposure limits

The BCBS framework for large exposures was last updated in 2014 (BCBS, 2014a). Its general rule (paragraph 16) is that *"The sum of all the exposure values of a bank to a single counterparty or to a group of connected counterparties must not be higher than 25% of the bank's available eligible capital base at all times"*, whereas paragraph 17 defines the eligible capital base as Tier-1 capital under Basel III.[72] However, paragraph 61 states that *"banks' exposures to sovereigns and their central banks are exempted. This exemption also applies to public sector entities treated as sovereigns according to the risk-based capital requirement."* Thus, the current Basel framework does not impose any limit on large sovereign exposures, domestic or otherwise.

CRR transposes this framework into EU law but with a less rigorous definition of eligible capital: its article 3(71) includes *"Tier 2 capital (…) that is equal to or less than one third of Tier 1 capital"* in addition to Tier-1 capital. This departure from the Basel framework is unlikely to be reversed in CRR2, based on the legislative process at the time of writing. Article 400 of CRR describes the exemptions from large exposure limits, including all zero-risk-weighted sovereign assets.

A.3 Leverage ratio

The leverage ratio is a non-risk-based measure of capital which has been used in the United States for a long time and is being introduced in the European Union as part of its implementation of Basel III. It is calculated as a (comparatively) simple ratio of Tier-1 capital over total balance-sheet assets plus some off-balance-sheet items.

CRR (Article 430) has mandated public disclosure by EU banks of their leverage ratio since 2015. New legislation (CRR2) proposed by the European Commission in November 2016 and currently under discussion by the co-legislators would make a minimum leverage ratio of 3 % mandatory from 2018 onwards.

The leverage ratio includes sovereign exposures together with all other assets.[73] For most euro-area banks, however, this does not represent a strong constraint on their sovereign home bias. Furthermore, all sovereign exposures, including concentrated ones, are treated equally under the leverage ratio, which therefore does not entail an incentive to diversify across sovereigns.

A.4 Liquidity

Another innovation of Basel III is the introduction of the Liquidity Coverage Ratio (LCR), which measures the extent to which banks' volatile liabilities, such as short-term wholesale funding, is covered by *"high-quality liquid assets"*. Specifically, at least three-fifths of the liquidity coverage requirements must be met with 'level-1' assets, which in the Basel framework are only exposures to governments and other public-sector entities.[74] This creates a strong incentive to hold sovereign

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[72] The current Basel and EU frameworks distinguish between several "tiers" of a bank's capital, based on loss-absorbing capacity. The greatest loss-absorbency defines Common Equity Tier 1 capital, or CET1. Tier 1 is the sum of CET1 and "Additional Tier 1" (AT1) capital, the latter including some contingent convertible securities. Tier 2 capital is a supplementary capital category that includes some subordinated debt.

[73] A revision of this feature has been proposed in a recent US Treasury report on financial regulation (US Treasury, 2017, page 14). At the time of writing, however, there has been no decision to implement this proposalby the relevant federal agencies such as the Federal Reserve Board. Separately, in the United Kingdom, the Bank of England has recently been considering an exemption of central bank reserves from the future calculation of the leverage ratio: see Bank of England, "Record of FPC Meeting held on 20 September 2017", available at http://www.bankofengland.co.uk/publications/Pages/Records/fpc/2017/record1710.aspx.

[74] In CRR, high-quality covered bonds are also included as "level-1 assets" in a departure from the Basel framework (BCBS, 2017a).

bonds, which constitute the bulk of liquid assets as defined for the purposes of calculating the LCR. The LCR has been introduced in 2015, including in the European Union under CRR, and will reach its steady-state calibration in 2019.

Another constraint on liquidity is the Net Stable Funding Ratio (NSFR), also first introduced in the Basel III accord and applicable from 2018. On first analysis, it does not appear that the NSFR should significantly affect banks' sovereign home bias patterns.

A.5 Pillar 2

The above-described items are all components of Pillar 1, BCBS jargon for prudential regulatory requirements that apply similarly to all banks.[75] Pillar 2 refers to bank-specific requirements imposed by the supervisor in addition to the generally applicable Pillar 1. Most Pillar 2 requirements are not made public and thus difficult to assess, including any recent or current SSM requests on specific euro-area banks to diversify their sovereign exposures – even though the Chair and Vice-Chair of the SSM Supervisory Board have publicly and repeatedly expressed their concern about concentrated sovereign exposures.

A.6 Public accounting and disclosure, stress testing

Banks' public disclosures of their financial statements and additional information shape their assessment by market participants, which in turn influences their behaviour. The BCBS framework acknowledges the importance of such market discipline by including a third pillar consisting of mandatory disclosure requirements. *"Pillar 3 disclosures"*, made mandatory in EU law through the CRR, come in addition to any financial reporting requirements from the applicable accounting standards, which for most (not all) significant euro-area banks are International Financial Reporting Standards (IFRS) as endorsed by the European Union.

Figure 3 of Enria, Farkas and Overby (2016) provides a snapshot of valuation methods used by a sample of large EU banks for their net direct sovereign holdings. It illustrates the significant, though highly variable across countries, extent to which banks label their sovereign exposures *"held to maturity"* and consequently value them at amortised cost (i.e. not at 'fair' or market value) for purposes of their public financial reporting. As the authors note, such accounting practices can stand at odds with the labeling of sovereign bonds as liquid assets, particularly in the context of liquidity coverage requirements.

Neither the Basel framework for Pillar 3 disclosures nor IFRS standards include any requirements for banks to disclose their sovereign exposures on a country-by-country basis. But following developments of the Greek crisis, including the observation of embarrassingly heterogeneous valuations of distressed Greek bonds in EU banks' financial statements in mid-2011,[76] the EBA since 2011 has promoted more extensive and harmonised disclosures of sovereign exposures by the European Union's largest banks, on a voluntary basis.[77] The EBA has consequently published bank-level datasets of sovereign exposures for EEA-headquartered banks that have become the reference source for all subsequent studies in this area. The size of the EBA sample of banks has varied over time:

[75] Other elements of Pillar 1 not detailed here, on credit risk mitigation and on market risk, also include specific exemptions for sovereign exposures.

[76] See e.g. Tracy Alloway, "Dear ESMA... about those Greek debt impairments", *FT Alphaville*, 31 August 2011, available at https://ftalphaville.ft.com/2011/08/30/664721/dear-esma-about-those-greek-debt-impariments/.

[77] The predecessor body of the EBA, the Committee of European Banking Supervisors, conducted EEA-wide stress tests in 2009 and 2010 but did not publish any corresponding sovereign exposure data.

- 2011 stress test (published 15 July 2011): 90 EEA banks (of which 75 from the euro area), reporting gross direct long sovereign exposures as of end-2010;
- 2011 capital exercise (published 3 October 2012): 61 EEA banks (46 from euro area), reporting gross direct long sovereign exposures as of end-2011 and mid-2012;
- 2013 transparency exercise (published 16 December 2013): 64 EEA banks (49 from euro area), reporting gross direct long sovereign exposures as of end-2012 and mid-2013;
- 2014 stress test (published 26 October 2014): 123 EEA banks (103 from euro area), reporting gross direct long sovereign exposures as of end-2013;
- 2015 transparency exercise (published 24 November 2015): 105 EEA banks (90 from euro area), reporting gross direct long sovereign exposures as of end-2013, end-2014 and mid-2015;[78]
- 2016 stress test (published 29 July 2016): 51 EEA banks (37 from euro area), of which 49 (including all euro-area 37) reported gross direct long sovereign exposures as of end-2015;
- 2016 transparency exercise (published 2 December 2016): 131 EEA banks (111 from euro area), of which 86 (72 from euro area) reported sovereign assets as of end-2015 and mid-2016.

A 2017 transparency exercise is ongoing, of which the results are scheduled for publication by the EBA in December 2017. As this list also illustrates, the definition of reported exposures has changed, from "gross direct long exposures" to "assets", in the last published transparency exercise, with the consequence that the most recent available data (as of mid-2016) are not directly comparable to earlier series.

The stress testing methodology has varied over time but has included scenarios of sovereign stress since 2011, including "floors" (mandatory minimums) to the loan-loss provisions for sovereign exposures as explained in Enria, Farkas and Overby (2016). The stress tests do not currently acknowledge the risk-mitigating effects of geographical diversification of sovereign portfolios, since they assume simultaneous sovereign debt market stress in all relevant member states.

A.7 Central bank liquidity

Separately from the application of risk weights (or the absence thereof) in banks' capital calculations, central banks also implement a risk framework of their own in the execution of liquidity policies. Here again, it is worth quoting at some length Enria, Farkas and Overby (2016): *"As long as central banks through their monetary policy operations were willing to act as a backstop and at the same time co-existed with predominantly domestic banking systems, the preferential treatment given to domestic sovereigns appeared well-founded. Looking at today's setting for monetary policy operations, it is however clear that the old arguments are less robust, given that sovereign assets are no longer automatically converted into cash. The use of Value-at-Risk considerations influenced central banks and lead to the introduction of differentiated haircuts on assets received as collateral. For example, the Eurosystem applies haircuts to the sovereign collateral posted by banks to access central bank liquidity. The haircuts reflect the credit standing of the issuers and are based on external ratings, but appear calibrated to reflect market risk, i.e. the risk for the Eurosystem of having to sell those exposures and bear losses, in the short term, due to adverse price movements."*

There is no indication in the public domain of Eurosystem liquidity policies being used as an instrument to incentivise diversification of euro-area banks' sovereign portfolios, even though such use could be possible in principle.

A.8 Currently considered reforms

As briefly mentioned in the previous section, the Governors and Heads of Supervision who supervise the BCBS have asked it to review the regulatory treatment of sovereign exposures, and the BCBS set

[78] Reassuringly, the end-2013 data in this sample are identical to those from the 2014 stress test.

up a Task Force on Sovereign Exposures in early 2015. That task force was initially due to publish recommendations by June 2016 (Lenarcic, Mevis and Siklos, 2015, page 5) but has not done so, or otherwise made any public communication, at the time of writing this paper.[79] Prakash, Misra and Choudhary (2017) offer a timely discussion of the corresponding negotiation and note that *"Some E[merging] M[arket] E[conomie]s including India, Brazil and Russia along with some A[dvanced] E[conomie]s such as Japan and Italy, have voiced concern on change in regulatory treatment of sovereign exposures."* They conclude with the suggestion that *"While the issue of sovereign risk weight is still a work in progress and it is premature to say which way it would end [...] given the sensitivities of the issues involved, a careful, holistic and gradual approach is desirable"* – the last three epithets being the same used by the BCBS itself to describe the ongoing process. There is no reason to expect a breakthrough in this discussion in the immediate future.

At the EU level, the European Commission's proposal in November 2016 for significant changes and updates to the existing CRR and CRD, or CRR2 / CRD5, do not include any significant modifications of the approach to sovereign exposures.[80]

[79] The BCBS's ongoing review of the regulatory treatment of sovereign exposures is mentioned on the Committee's website, e.g. http://www.bis.org/bcbs/bcbs_work.htm. As of September 2017, the corresponding task force is not listed on the Committee's list of working groups and task forces on policy development (http://www.bis.org/bcbs/mesc.htm), suggesting that the initial phase of technical work may have been completed. A presentation by an advisor at the Saudi Arabia Monetary Authority, posted online on 25 January 2017, displays headline items from the task force's output (available at https://www.slideshare.net/QaiserNoor/basel-future-development, slide 22).

[80] On the face of it, proposed changes to Article 493 of CRR (item 120 of the Commission's CRR2 proposal of 23 November 2016) appear to restrict EU banks' future sovereign exposures. But these are only about transitional arrangements without corresponding changes in the permanent exemption (Article 400). Therefore, their impact would presumably be mostly symbolic, even assuming that they are kept in the final legislation.

ANNEX B: SOVEREIGN EXPOSURES OF LARGE EURO-AREA BANKS

Banking Group	Country	Tier 1 Capital (€m)	Domestic sovereign exposure (ratio to Tier 1)	Highest sovereign exposure, if not domestic (ratio to Tier 1)	Home bias (domestic to euro-area sovereign exposures)	Total euro-area sovereign exposures (ratio to Tier 1)	Total EEA sovereign exposures (ratio to Tier 1)	Total global sovereign exposures (ratio to Tier 1)	Total assets (€m)	Total sovereign exposures to total assets
SFIL (Société de Financement Local)	FR	1,376	3583%		87%	4097%	4098%	4262%	85,806	68%
BNG Bank (Bank Nederlandse Gemeenten)	NL	3,669	947%		83%	1147%	1147%	1181%	163,456	27%
NORD/LB (Norddeutsche Landesbank)	DE	7,987	413%		87%	474%	480%	512%	179,166	23%
Helaba (Landesbank Hessen-Thüringen)	DE	7,841	389%		94%	416%	417%	422%	175,629	19%
Bayerische Landesbank	DE	8,959	387%		95%	408%	427%	491%	224,296	20%
Belfius	BE	7,523	342%		82%	416%	418%	428%	188,004	17%
BPCE	FR	54,322	308%		87%	353%	354%	383%	1,219,744	17%
Banca Popolare di Sondrio	IT	2,522	295%		100%	296%	296%	297%	35,623	21%
Monte dei Paschi di Siena	IT	9,147	276%		98%	281%	281%	281%	164,386	16%
PBB Deutsche Pfandbriefbank	DE	2,663	259%		34%	759%	782%	797%	67,492	31%
Caixa Geral de Depósitos	PT	6,013	248%		84%	295%	295%	341%	99,355	21%
Erwerbsgesellschaft der S-Finanzgruppe	DE	3,279	243%		88%	275%	288%	305%	NA	NA
Bank of Valletta	MT	553	239%		77%	310%	328%	371%	10,496	20%
AXA Bank	BE	949	237%		36%	655%	655%	655%	NA	NA
NRW.BANK	DE	18,372	229%		77%	295%	299%	328%	NA	NA
Aareal Bank	DE	2,762	220%		61%	359%	372%	390%	50,925	21%
Landwirtschaftliche Rentenbank	DE	3,476	217%		89%	243%	243%	243%	NA	NA
DZ Bank	DE	14,991	216%		81%	266%	274%	290%	521,354	8%
HSH Nordbank	DE	5,803	208%		89%	235%	235%	249%	90,796	16%
LBBW (Landesbank Baden-Württemberg)	DE	12,677	207%		85%	243%	243%	269%	259,693	13%
Credito Emiliano	IT	1,737	197%		63%	312%	312%	312%	NA	NA
Promontoria Sacher Holding	AT	2,044	194%		80%	242%	245%	248%	NA	NA
Caixa Central de Crédito Agrícola Mútuo	PT	1,097	189%		48%	398%	398%	398%	NA	NA
DekaBank	DE	4,575	187%		90%	209%	224%	232%	104,307	10%
Banco de Sabadell	ES	10,281	186%		74%	251%	269%	299%	207,891	15%
UniCredit	IT	45,134	171%		52%	330%	378%	405%	891,477	20%
Nova Kreditna Banka Maribor	SI	555	152%		70%	218%	233%	233%	4,224	31%
Intesa Sanpaolo	IT	39,761	149%		67%	221%	229%	256%	717,292	14%
KBC	BE	14,568	147%		57%	259%	340%	347%	265,681	19%
Investar	BE	1,713	144%		68%	213%	231%	231%	NA	NA
Nova Ljubljanska Banka	SI	1,280	141%		78%	181%	182%	213%	11,761	23%
Millenium BCP	PT	4,719	135%		99%	137%	197%	204%	73,068	13%
Raiffeisen Niederösterreich-Wien	AT	1,926	135%		59%	229%	238%	250%	NA	NA
Permanent TSB	IE	2,221	131%		100%	131%	131%	131%	27,550	11%
BBVA	ES	50,364	129%		83%	156%	157%	269%	746,040	18%
National Bank of Greece	GR	8,828	113%		48%	235%	244%	251%	83,917	26%
Mediobanca	IT	6,505	108%		79%	136%	137%	141%	71,549	13%
Credit Agricole	FR	78,943	108%		76%	143%	148%	166%	1,770,663	7%
Commerzbank	DE	26,303	102%		52%	197%	241%	293%	532,602	14%
Raiffeisen Oberösterreich	AT	3,115	95%		80%	120%	125%	134%	NA	NA
Allied Irish Banks	IE	9,819	87%		75%	117%	119%	136%	97,387	14%
Crédit Mutuel	FR	40,747	82%		80%	102%	102%	113%	NA	NA
Erste Group	AT	13,534	78%		57%	135%	279%	292%	204,505	19%
Hellenic Bank	CY	679	76%		84%	90%	98%	113%	7,091	11%
Santander	ES	72,190	72%		78%	92%	120%	208%	1,342,907	11%
SNS Bank	NL	3,083	63%		38%	166%	171%	209%	NA	NA
Rabobank	NL	35,070	62%		81%	76%	76%	96%	686,593	5%
BNP Paribas	FR	78,864	58%	60% (US)	37%	158%	176%	290%	2,171,989	11%
Eurobank Ergasias	GR	6,514	57%		100%	57%	67%	221%	72,652	20%
Bank of Ireland	IE	7,467	54%		63%	87%	95%	103%	126,267	6%
ABN AMRO	NL	18,056	54%		32%	172%	180%	238%	418,940	10%
Precision Capital	LU	1,481	49%	70% (France)	13%	388%	407%	492%	NA	NA
Deutsche Bank	DE	56,382	46%	60% (US)	47%	98%	117%	235%	1,803,290	7%
Alpha Bank	GR	8,522	43%		96%	45%	48%	94%	67,372	12%
Novo Banco	PT	4,332	41%	48% (Italy)	36%	112%	112%	113%	55,291	9%
Société Générale	FR	49,754	36%		64%	56%	67%	123%	1,460,243	4%
Raiffeisen Holding	AT	7,255	33%		25%	132%	216%	245%	113,969	16%
ING	NL	48,271	32%	39% (Germany)	22%	142%	164%	188%	885,659	10%
Piraeus Bank	GR	9,193	25%		13%	194%	198%	200%	84,727	22%
OP-Pohjola	FI	8,334	21%	29% (Germany)	27%	77%	79%	79%	NA	NA
Bank of Cyprus	CY	2,736	19%		100%	19%	19%	32%	22,680	4%
VTB Bank	AT	910	8%	68% (Germany)	10%	79%	79%	110%	NA	NA
VW Financial Services	DE	13,254	8%		44%	17%	25%	25%	NA	NA
Medifin	MT	196	5%	57% (France)	4%	119%	119%	157%	NA	NA
RCI Banque	FR	3,586	4%	4% (UK)	38%	11%	15%	15%	NA	NA
Median		7,255	135%		76%	209%	231%	248%	163,456	16%
Average (unweighted)		15,089	208%		66%	290%	304%	333%	397,145	17%
Aggregate		980,783	127%		68%	187%	203%	251%	18,665,803	12%

Source: EBA Transparency Exercise 2016 (sovereign exposures and Tier-1 capital), SNL Financial (total assets), author's calculations. N.B. ESM bonds held by Greek banks, reported in the EBA dataset as exposures to either Luxembourg or "others", are not included as sovereign exposures in this table (see Section *4*).

ANNEX C: FICTIONAL SCCR IMPACT BASED ON MID-2016 EXPOSURES

Banking Group	Country	Tier-1 capital (€m)	Risk-weighted assets (€m)	Tier-1 capital ratio (pre-SCCR)	Domestic exposure (€m)	Domestic sovereign exposure ratio	Other sov. exposures above exemption threshold	Fictional SCCR impact (basis points)	Fictional Tier-1 ratio resulting from SCCR
SFIL (Société de Financement Local)	FR	1,376	5,886	23.4%	49,289	3583%	CH, DE, IT	-2,278	0.6%
BNG Bank (Bank Nederlandse Gemeenten)	NL	3,669	12,514	29.3%	34,733	947%	DE, FR, "others"	-2,615	3.2%
NORD/LB (Norddeutsche Landesbank)	DE	7,987	64,237	12.4%	33,014	413%		-409	8.3%
Caixa Geral de Depósitos	PT	6,013	60,016	10.0%	14,883	248%	"Others"	-104	9.0%
Bayerische Landesbank	DE	8,959	68,400	13.1%	34,714	387%	US	-406	9.0%
Banca Popolare di Sondrio	IT	2,522	23,403	10.8%	7,438	295%		-161	9.2%
Helaba (Landesbank Hessen-Thüringen)	DE	7,841	52,582	14.9%	30,500	389%		-507	9.8%
Raiffeisen Holding	AT	7,255	70,106	10.3%	2,412	33%		0	10.3%
UniCredit	IT	45,134	399,260	11.3%	77,208	171%	AT, ES, IT	-73	10.6%
Bank of Valletta	MT	553	4,588	12.1%	1,325	239%		-138	10.7%
Monte dei Paschi di Siena	IT	9,147	70,984	12.9%	25,259	276%		-201	10.9%
Banco de Sabadell	ES	10,281	86,854	11.8%	19,156	186%	IT	-84	11.0%
Caixa Central de Crédito Agrícola Mútuo	PT	1,097	8,581	12.8%	2,076	189%	IT	-170	11.1%
BPCE	FR	54,322	387,326	14.0%	167,575	308%		-288	11.1%
Belfius	BE	7,523	47,832	15.7%	25,701	342%	IT	-447	11.3%
Medifin	MT	196	1,689	11.6%	10	5%	FR, "others"	-6	11.6%
VW Financial Services	DE	13,254	114,049	11.6%	1,004	8%		0	11.6%
Erwerbsgesellschaft der S-Finanzgruppe	DE	3,279	24,389	13.4%	7,968	243%		-174	11.7%
Mediobanca	IT	6,505	53,862	12.1%	7,038	108%		-31	11.8%
Millenium BCP	PT	4,719	38,415	12.3%	6,373	135%	PL	-51	11.8%
Novo Banco	PT	4,332	36,105	12.0%	1,774	41%	IT	-5	11.9%
Promontoria Sacher Holding	AT	2,044	15,702	13.0%	3,973	194%		-101	12.0%
Santander	ES	72,190	586,047	12.3%	51,699	72%	Latin America	-24	12.1%
BBVA	ES	50,364	395,085	12.7%	65,124	129%	Latin America	-57	12.2%
Credito Emiliano	IT	1,737	13,007	13.4%	3,417	197%	BE, FR	-115	12.2%
BNP Paribas	FR	78,864	633,548	12.4%	45,653	58%	BE, US	-8	12.4%
Commerzbank	DE	26,303	199,070	13.2%	26,734	102%	IT	-35	12.9%
Intesa Sanpaolo	IT	39,761	286,686	13.9%	59,266	149%		-76	13.1%
Erste Group	AT	13,534	101,021	13.4%	10,496	78%	CZ, RO, SK	-19	13.2%
Raiffeisen Oberösterreich	AT	3,115	22,968	13.6%	2,966	95%		-29	13.3%
VTB Bank	AT	910	6,698	13.6%	69	8%	DE	-15	13.4%
DZ Bank	DE	14,991	98,829	15.2%	32,395	216%		-171	13.5%
DekaBank	DE	4,575	31,182	14.7%	8,567	187%		-121	13.5%
Raiffeisen Niederösterreich-Wien	AT	1,926	13,599	14.2%	2,594	135%	DE	-67	13.5%
PBB Deutsche Pfandbriefbank	DE	2,663	12,995	20.5%	6,907	259%	AT, ES, FR, IT	-680	13.7%
Deutsche Bank	DE	56,382	402,677	14.0%	25,767	46%	US	-4	14.0%
Société Générale	FR	49,754	355,091	14.0%	17,923	36%		-1	14.0%
Bank of Ireland	IE	7,467	52,035	14.3%	4,056	54%		-8	14.3%
Bank of Cyprus	CY	2,736	18,969	14.4%	509	19%		0	14.4%
Precision Capital	LU	1,481	9,901	15.0%	731	49%	BE, ES, FR, IE, IT	-51	14.4%
AXA Bank	BE	949	4,916	19.3%	2,247	237%	AT, FR, IT, LU, NL	-485	14.5%
Aareal Bank	DE	2,762	16,308	16.9%	6,082	220%	AT, IT	-234	14.6%
LBBW (Landesbank Baden-Württemberg)	DE	12,677	76,916	16.5%	26,268	207%		-181	14.7%
Credit Agricole	FR	78,943	518,527	15.2%	85,156	108%		-48	14.7%
HSH Nordbank	DE	5,803	34,471	16.8%	12,068	208%		-190	14.9%
RCI Banque	FR	3,586	23,777	15.1%	142	4%		0	15.1%
ING	NL	48,271	319,115	15.1%	15,206	32%	DE	-2	15.1%
KBC	BE	14,568	88,148	16.5%	21,425	147%	CZ	-105	15.5%
Nova Ljubljanska Banka	SI	1,280	7,730	16.6%	1,805	141%		-98	15.6%
Crédit Mutuel	FR	40,747	254,162	16.0%	33,324	82%		-30	15.7%
Alpha Bank	GR	8,522	51,300	16.6%	3,645	43%		-4	16.6%
Rabobank	NL	35,070	209,136	16.8%	21,575	62%		-17	16.6%
Eurobank Ergasias	GR	6,514	38,919	16.7%	3,690	57%		-13	16.6%
Hellenic Bank	CY	679	4,017	16.9%	515	76%		-29	16.6%
ABN AMRO	NL	18,056	106,138	17.0%	9,789	54%	FR	-11	16.9%
Allied Irish Banks	IE	9,819	56,528	17.4%	8,535	87%		-40	17.0%
Piraeus Bank	GR	9,193	53,262	17.3%	2,338	25%		0	17.3%
Permanent TSB	IE	2,221	11,898	18.7%	2,907	131%		-108	17.6%
Landwirtschaftliche Rentenbank	DE	3,476	15,350	22.6%	7,555	217%		-365	19.0%
OP-Pohjola	FI	8,334	42,414	19.7%	1,755	21%		0	19.7%
National Bank of Greece	GR	8,828	41,174	21.4%	10,003	113%		-106	20.4%
Investar	BE	1,713	7,459	23.0%	2,471	144%		-192	21.0%
Nova Kreditna Banka Maribor	SI	555	2,190	25.3%	845	152%		-253	22.8%
SNS Bank	NL	3,083	11,610	26.6%	1,928	63%	DE, JP	-48	26.1%
NRW.BANK	DE	18,372	45,182	40.7%	41,995	229%		-1,143	29.2%

Source: EBA Transparency Exercise 2016, author's calculations based on the Calibration in Table 2.

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