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Sovereign Bond Purchases and Risk-Sharing Arrangements – Implications for Monetary Policy

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Abstract

The design of the euro area Quantitative Easing (QE) programme raises the question of whether insufficient liquidity in the bond markets will reduce the impact of the programme and lead to market volatility. While estimates suggests that scarcity of around €102 billion may arise over the life of the programme, to date the QE programme has met its monthly targets and bond market volatility has been managed. Questions also arise in respect of the fact that risk is not fully shared on up to €738.4 billion to be purchased over the life of the programme. Partial risk sharing raises the spectre of defaulting central banks exiting the euro system, and existing members being unwilling to bear associated costs, and thus the future of the euro area. However, estimations suggest that, at present, all national central banks should be able to bare losses stemming from sovereign debt purchases under the current round of QE.

Executive summary

• The euro area Quantitative Easing (QE) programme is known as the Expanded Asset Purchase Programme (EAPP), the most important aspect of which is the Public Sector Purchase Programme (PSPP), which was announced in January 2015 and launched in March.

• The EAPP is expected to entail approximately €60 billion / month over 19 months of which 80% will entail the purchases of the bonds of euro area central governments, agencies and European institutions, under the PSPP.

• Two key issues related to the PSPP have attracted most attention. The first is the possibility that there may be insufficient liquidity in bond markets over the life of the programme, which may reduce the impact of the programme and lead to a distortion of markets.

• Estimations suggested that insufficient bonds may be available over the life of the programme. There is an imbalance between the supply and demand of newly issued bonds of €102 billion. Countries most likely to struggle with a shortage of bonds are Germany, France, Austria, Netherlands, Belgium, Portugal, Finland and Slovenia. However, the programme has run smoothly in its first 3 months, while market volatility has been managed.

• The second issue relates to the contention that the ESPP represents a withdrawal from full risk sharing. It has been argued that this may increase the probability of default by a national central bank, even as the whole Eurosystem remains solvent. Defaulting members may leave the euro area. Non-defaulting members may be unwilling to bear the costs of such defaults. Some have suggested that this could threaten the unity of the euro area.

• On an empirical level, it has been suggested that, at present, all NCBs should be able to bear losses stemming from sovereign debt purchases under the current round of QE. However, there is a risk of default under a low growth scenario.

1. Introduction

The ECB Governing Council introduced its asset-purchasing programme, also known as quantitative easing (QE), in September 2014. This began with two private sector asset purchase programmes: the Covered Bond Purchase Programme (CBPP) was adopted in conjunction with the Asset-Backed Securities Purchase Programme (ABSPP). Effectively, the ECB began buying covered bonds (a type of debt secured by a pool of loans, such as mortgages) in October 2014 and added asset-backed securities in November 2014. However, it was not until January 2015 that the European Central Bank Governing Council decided to extend the programme and launch sovereign QE, with the announcement of the Public Sector Purchase Programme (PSPP). The new programme, effective from March 9 2015, encompasses euro-denominated investment-grade securities issued by euro area governments and agencies and European institutions.The CBPP, ABSPP and PSPP are together known as the Expanded Asset Purchase Programme (EAPP)[1].

Since then there has been significant disagreement over the necessity of the euro zone sovereign QE programme, its timing, legality, prospects for success and failure, as well as over how it should be designed. Different viewpoints are based on both economic and political considerations. The ECB itself did not initiate QE without some hesitation, despite pressure from markets, governments, and international financial institutions[2]. Rather, QE was launched gradually and, as stated by Benoît Coeuré, member of the Executive Board of the ECB, only when it was felt that the economy was moving into a zone in which inflation rates were expected to persistently deviate from the ECB's definition of price stability, and in order to restore function to dysfunctional markets after the financial crisis (April 2015)[3].

With the PSPP now in place, the debate continues apace as the programme gains momentum and evolves. From an economic perspective, the debate is centred around two main themes: first, the potential scarcity of sovereign bonds to be purchased under the programme – the dominant theme in the current debate on sovereign QE; and second, the absence of full

[1] Quantitative easing policies can be described as policies that increase the monetary base. They include such programmes as asset purchases and lending programs. Under such definition, the ECB has engaged in a form of quantitative easing already in the aftermath of the global financial crisis of 2007 and 2009. At that time, the ECB focused on direct lending to NCBs to increase their reserves. Although the Securities Markets Programme introduced in 2010 allowed the ECB to purchase sovereign debt in secondary markets (during 2010 and 2012, the Bank bought sovereign debt from countries like Greece, Spain and Italy), it cannot be considered as QE as the purchases were sterilized and did not increase the monetary base of the euro area (Fawely and Neely, 2013).

[2] See for example: http://blog-imfdirect.imf.org/2014/07/14/euro-area-qa-on-qe/ or http://www.theguardian.com/business/2015/jan/13/world-bank-quantitative-easing-eurozone-stagnation.

[3] It should be noted that although the ECB itself started seeing in mid-2014/early-2015 the risk of possible deflation (i.e. a situation in which there is a downward spiral driven by falling wages and prices in which aggregate demand decreases with negative results for employment and growth), others, such as Bundesbank President Jens Weidmann, believed there was no such risk (Weidmann, January 2015).

profit and loss sharing by national central banks (NCBs). It has been claimed that both issues have consequences for the success of the European QE programme.

In respect of the first of these themes, it has been argued that liquidity constraints could undermine the ability of the ECB to bring inflation closer to its target of 2%, and could also disrupt the bond market. The purchase of bonds under QE would drive bond prices up and yields down. Of course, low yields is precisely what QE is intended to achieve. But if there is insufficient liquidity, the magnitude of the effect would be insufficient to achieve the goals of QE. Additionally, under conditions of scarcity QE could disrupt bond markets, giving rise to mispricing, undermining pass through to lending rates, and leading to a reduction in the availability of collateral necessary for repo transactions.

In respect of the second of these themes, it is argued that limited risk-sharing (i.e., the absence of full profit and loss sharing between euro zone countries) could potentially lead to a situation in which some NCBs refuse to participate in the programme[4], or in which individual NCBs become insolvent, putting at stake the unity of the euro area (Willem Buiter, March 2015)[5].

ECB President, Mario Draghi, has addressed these issues directly, stating that although some discretion will be allowed, the ECB remains in full risk-sharing mode. He has emphasized that although limited risk-sharing arrangements adopted for the needs of EAPP may have some effects, these effects are not highly relevant to the overall effectiveness of the programme (Draghi, 2015). Mr. Draghi has also confirmed the expectation of many observers that in the event of a country default and exit from the euro zone, the remaining members would necessarily share the related cost through the TARGET 2 system (i.e. the euros created for the purposes of debt monetisation will stay in the system and will become liabilities to the Eurosystem).

In this brief we will look more closely at the issues behind these themes, and assess the likeliness that the associated concerns will materialise, with implications for common monetary policy and the overall stability of the euro system. In Section 2 we review the structure of the QE programme. In Section 3, we analyse liquidity concerns arising from the size of the programme, low government net issuance and negative yields. In Section 4 risk-sharing concerns are addressed. Finally, Section 5 concludes with comments on the implications of the programme for Europe’s common monetary policy.

[4] As raised by Ugo Panizza, professor of international economics at the Graduate Institute in Geneva: ‘why should I buy Italian bonds if the ECB itself is not taking a risk?’ (The Economist, January 2015).
[5] In his speech titled “Public sector purchases and monetary dominance in a monetary union without fiscal union”, Peter Preat, member of the Executive Board of the ECB, argued that the limits imposed on full risk-sharing roughly correspond to the allocation of fiscal responsibilities in the euro area, thereby preserving the incentives for fiscal discipline of the member states’ governments (April, 2015).

2. The structure of EAPP

In the beginning of March 2015, Eurosystem central banks commenced large-scale purchases of the bonds of Euro Area (EA) central governments, agencies and European institutions, putting into effect the PSPP that had been announced in January. The purchases under the PSPP added to purchases of the two other programmes already in place: the Third Covered Bond Purchase Programme (CBPP3), and the Asset-Backed Securities Purchase Programme (ABSPP). Together, the CBPP3, the ABSPP and the PSPP comprise the Expanded Asset Purchase Programme (EAPP).

With the launch of the PSPP, the ECB announced that combined monthly purchases under the EAPP will amount to €60 billion (or €1.1 trillion annually). Of this €60 billion, €15 billion will be purchased by the ECB and €45 billion by the National Central Banks (NCBs) (see Table 2).

The duration of the programme will be at least 19 months, with Mr. Draghi stating that the programme will last until at least September 2016 and, in any case, until the Governing Council sees a sustained adjustment in the path of inflation, consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term (Draghi, January 2015)[6]. Notwithstanding some improved sentiment on European recovery and inflation, Mr. Draghi restated this timeline in April 2015, dispelling any expectation of early tapering (Draghi, April 2015).

The PSPP has attracted significantly more attention than the CBPP3 and ABSPP, most immediately because of its size—most estimates of the PSPP put the size of the PSPP at roughly 80% of the EAPP (see below for further details). The PSPP also stands apart from the EBPP3 and ABSPP in that the latter comprise the purchase of private assets – covered bonds and asset backed securities. The PSPP, however, entails the purchase of the debt of euro area governments and agencies and European institutions, which, together with the scale of the PSPP and the lack of full risk-sharing, has far greater implications for the euro systems.

Under the PSPP, the ECB and NCBs purchase on the secondary market nominal and inflation-linked central government bonds as well as bonds issued by recognised agencies, international organisations, and multilateral development banks located in the Eurozone. Securities purchased by the NCBs under the PSPP can only be issued by their respective governments, implying limited risk-sharing (ECB, 2015). The purchases of NCBs and the ECB are made

[6] Draghi, M., I*ntroductory Statement to the Press Conference (with Q&A)*, January 2015, https://www.ecb.europa.eu/press/pressconf/2015/html/index.en.html.

according to the ECB's capital key (see Table 1). To be purchased on the secondary market, the bonds must have a remaining maturity of 2 to 30 years, and must be denominated in euros and be eligible as collateral under ECB policy operations[7]. No maximum or minimum maturity has been defined for CBPP3 or ABSPP.

It was also decided that bonds yielding less than the ECB deposit rate (currently minus 2 basis points) are not eligible for purchase (ECB, 2015)[8]. When complete, sovereign QE should leave the ECB with about 15% of the outstanding sovereign debt in the EA (see Table 1, Column 7). For comparison, the Fed, BoE, or BoJ hold 20% or more of their sovereign's debts.

Table 1. EA distribution of outstanding debt according to capital key

Country	Capital key	Gov bonds 2-30Y	Agencies 2-30Y	PSPP potential	Gov bonds+agencies plan	Plan (% of outstanding
Germany	25.6	825.5	168.8	254.5	205.5	21
France	20.1	1121	128.6	251.2	161.3	13
Italy	17.5	1308	9.7	230.6	140.5	11
Spain	12.6	571.1	16.6	74.1	101.1	17
Netherlands	5.7	270	40.2	17.7	45.7	15
Belgium	3.5	274.4	0	9.6	28.1	10
Austria	2.8	154.5	0	4.3	22.5	15
Portugal	2.5	90.2	0	2.3	20.1	22
Finland	1.8	71	1.3	1.3	14.4	20
Ireland	1.6	102.8	0	1.6	12.8	12
Slovakia	1.1	22.8	0	0.3	8.8	39
Slovenia	0.5	12.6	0.1	0.1	4.0	32
Others	4.7	n.a	n.a	n.a	37.7	n.a
Eurosystem	100	4823.9	365.3	847.5	802.6	15

Note: Columns 3 and 4 present the outstanding debt with a maturity between 2 and 30 years of the EA governments and agencies included in the programme. Column 5 shows PSPP potential in this class of assets. Finally, columns 7 and 8 present the envisaged scope of the programme and programme buying as a percentage of total outstanding debt.

Source: Bloomberg, own calculations.

In addition to these eligibility criteria (the high bond rating and minimum yield), the Governing Council also imposed a 25% limit on holdings of individual issues and an aggregate 33% limit on an issuer (holdings of any national government's aggregated bond debt). According to the ECB, an issue share limit of 25% needed to be applied in order to avoid potential direct

[7] To be able to serve as collateral, the bond must have a sufficiently high rating or be under an EU assistance programme (to make allowance for bail-out countries).

[8] ECB, *Implementation Aspects of the Public Sector Purchase Programme*, March 2015.

financing of a member state (such as debt restructuring). Similarly, the issuer limit of 33% was imposed in order to preserve market functioning and price formation as well as to mitigate the risk of the ECB becoming a dominant creditor of euro area governments. To this end, the 33% limit is applied to all eligible assets in the 2 to 30-year range of residual maturity (ECB, April 2015)[9]. The limits are based on the nominal value of bonds (as opposed to market value). No minimum issuance volume has been defined for CBPP3 or ABSPP.

2.1.Decomposition of Purchases under the EAPP

Table 2 below presents an estimation of how the EAPP has been composed. The design of the programme is evolving, with the ECB seeking to maintain some flexibility, and so there is some uncertainty on the final shape of the EAPP.

Table 2. Allocation of assets under the EAPP and risk-sharing

<table>
<tr><td colspan="4">Total monthly purchases, (billion)</td></tr>
<tr><td colspan="4">60 (1,140)</td></tr>
<tr><td>ABSPP+CBPP3 (20%)
Subject to loss-sharing</td><td colspan="3">PSPP (80%)</td></tr>
<tr><td rowspan="5">12 (228)
20%

ECB</td><td colspan="3">48 (912)
80%</td></tr>
<tr><td colspan="2">GOV BONDS+AGENCIES (88%)</td><td>SUPRAS (12%)
Subject
to loss-sharing</td></tr>
<tr><td colspan="2">42 (802.6)</td><td rowspan="2">6 (109.4)
NCBs</td></tr>
<tr><td>8%
Subject
to loss-sharing</td><td>92%
Lack of loss-sharing</td></tr>
<tr><td>3 (64.2)
ECB</td><td>39 (738.4)
NCBs</td><td>6 (109.4)
NCBs</td></tr>
</table>

Note: The total value of purchases until September-2016 is provided in brackets.

Source: Based on the ECB's data and EAPP announcement (January 2015)[10].

[9] ECB, *Q&A on the Public Sector Purchase Programme (PSPP)* March 2015..

[10] https://www.ecb.europa.eu/press/pr/date/2015/html/pr150122_1.en.html..

The ECB has stated that the CBPP3 and ABSPP will remain at its current scale – approximately €12 billion worth of covered bonds and asset-backed securities per month, which implies that the PSPP should reach approximately €48 billion per month or €802.6 billion up to September 2016 (see Table 2). The ECB has further clarified that the purchase of securities of European institutions (international or supranational institutions, (SUPRAS)) will correspond to 12% of the total value of the PSPP (or around €6 billion per month), leaving the implied target for government and agency bonds at around €42 billion per month[11]. Out of the €42 billion eligible for purchase, the ECB qualifies for 8%, or €3 billion worth of additional asset purchases (i.e. purchases under the PSPP). This leaves €39 billion for the NCBs (or €738.4 up to September 2016), which is the amount in euros which is not subject to risk-sharing.

The split between the ECB and the NCBs purchases from national agencies has not been clarified. Some estimations point into an equal share (see Section 3 for more on this issue and on the issue of availability of liquid funds from agencies and SUPRAS). What the ECB has indicated is that NCBs will enjoy freedom in choosing the amount of bonds to purchase from national governments and from agencies (as long as those agencies are located in their jurisdiction). Therefore the split between sovereign bonds and bonds purchased from agencies will vary across NCBs.

3. Bonds eligibility and liquidity constraints

The first major issue of the debate around the EAPP relates to liquidity constraints. The size and the design of the EAPP immediately raised the question of the potential scarcity of bonds available for purchase. The scarcity of bonds to purchase could have two impacts – it could limit the effectiveness of the programme, reducing impacts on inflation (and support to growth). It could also lead to significant distortions in bond markets, with supply insufficient for demand.

The ECB has played down the issues relating to liquidity constraints, stating that "the programme is flexible enough in any event to be adjusted if circumstances are to change" (Draghi, April 2015). However, liquidity constraints under the PSPP could be an issue for a number of reasons: first, the fact that only bonds yielding no less than -0.2% are eligible for purchases may limit the amount of bonds eligible for purchases (at the onset of the programme the interest rates of many major countries' bonds were already low, and so increased demand could push more bonds into 'non-buying' territory); second, the size of the programme is curtailed by the 25% limit on holdings of individual issues and the aggregate 33% limit on an issuer; and third, the fact that the Eurozone governments are currently on a path of fiscal consolidation –

[11] The list of eligible agencies and SUPRAS is available on the ECB website: https://www.ecb.europa.eu/mopo/implement/omt/html/pspp.en.html..

i.e., they are reducing fiscal deficits, which negatively impacts governments' net issuances (and the amount of newly issued bonds available for purchase).

Estimation of the total amount of newly issued government bonds over the duration of the programme, suggest that there may be an imbalance between the supply and demand of newly issued bonds of €102 billion. As Table 3 shows, (see column 'Adjusted Net Issuance' in Table 3), countries most likely to struggle with a shortage of bonds are Germany, France, Austria, Netherlands, Belgium, Portugal, Finland and Slovenia.

Table 3. Bond availability under the PSPP limits

	Gross issuance 2015e	Net Issuance 2015e	Inferred Buying*	Net flow	Adj net flow	Adj net issuance**
Germany	251.8	32.3	162	-9	-213.3	-172
France	296.1	120.4	140	54.8	-124.6	-59
Italy	424.6	203.5	139	111.6	-47.8	44.1
Spain	224.8	131.7	97	85.6	-43.2	2.9
Netherlands	76	27.9	38	13.9	-41.2	-27.2
Belgium	56.2	19.8	28	1	-39.3	-20.4
Austria	26.9	2.2	22	-8.3	-30.7	-20.2
Portugal	20.6	12.7	20	5.5	-14.6	-7.4
Finland	19	7.5	14	4	-10	-6.6
Ireland	21.4	13.3	13	5	-8.3	0
Slovakia	13.2	10.2	9	8.5	-0.3	1.4
Slovenia	4.3	3	0	2.1	-2.9	-2
Others	n.a	n.a	4	n.a	n.a	n.a
Total	1434.9	584.5	687.0	274.7	-576.2	-266.4

Note: *Column 'Inferred Buying' was calculated after taking into account the share of eligible government bonds in total eligible bonds. **Column 'Adjusted Net Issuance' adjusts net issuance of bonds for coupon purchases.

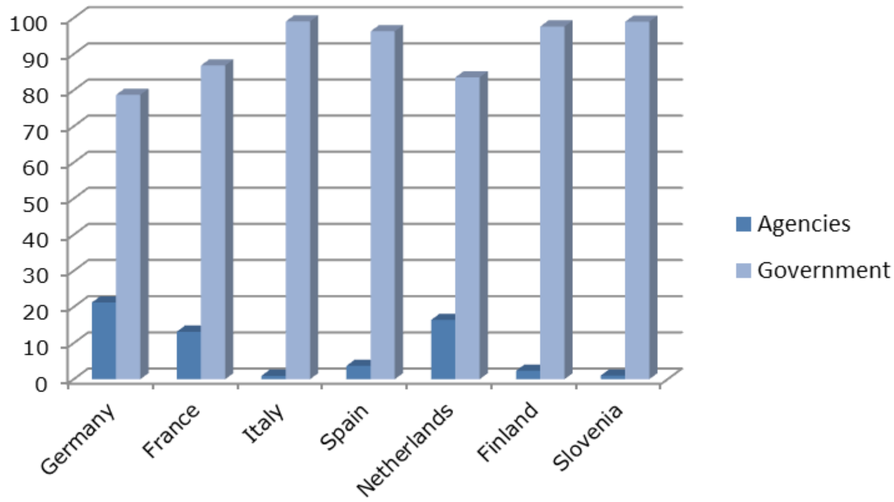
Source: Bloomberg, own calculations.

Estimations of net flows also point to shortages in the supply of available bonds. Net flows indicate the value of bonds left for purchase after adjusting for reinvestment of coupon repayments. Although net flows are positive for all countries but two (Germany and Austria), after adjusting for programme purchases, there appears to be an imbalance between supply and demand (column 'Adjusted net flows'). The shortage of liquidity could be potentially managed by purchases from the supranational and international issuers (and the programme envisages that the NCBs will be buying around €6 billion of debt from these institutions).

However, some estimates suggest that net issuances of SUPRAS in 2015 may be negative, which would limit this option (Danske Bank (2015), for instance, estimates net issuances in 2015 of negative €3 billion). The existing gap could also be partially supplemented by purchases from agencies. However, as Figure 1 shows, smaller countries, for which the share of eligible bonds to purchase from agencies in total bonds available (excluding SUPRAS) is minimal, may struggle to meet their buying targets.

Finally, since the estimates presented in Table 1 suggest that the sovereign bond buying programme could be larger in scope by around €45 billion if the 25 and 33% caps were not applied, the ECB could also think about changing the limits imposed on bonds eligible under the programme[12].

Figure 1. The share of eligible agencies' bonds under PSPP



Source: Bloomberg, own calculations.

3.1.Recent Developments

How have these issues played out?

With the programme already in place for almost three months, it can be said that the issues behind market concerns – although justified in principle – have not yet materialised. As shown by Table 4, the ECB has been able to achieve its target of €60 billion.

Also, it would appear that in March and April, the ECB was also compliant with the capital key ratios in its purchases, with only very small divergences (see Table 5 below). In terms

[12] This is because the value of eligible bonds (i.e. bonds with maturity between 2 and 30 years and with yields greater than - 0.2%) is estimated to be €847.5 billion whereas, currently, the programme envisages purchasing around €802.6 billion (see Table 1).

of the weighted average maturity of the purchases, these were also very much in line with the weighted average maturity of eligible bonds, with some discrepancies for small countries (Gudin et al., 2015). Among the larger issuers, only Portugal and Spain displayed some divergence. According to many market observers, this kind of diversity is normal in the early stages of a programme.

Table 4. Eurosystem holdings under EAPP

	CBPP3	ABSPP	PSPP	Monthly total
	Outstanding Amounts			
Oct-2014	0	4,768	0	4768
Nov-2014	368	17,801	0	18169
Dec-2014	1,744	29,632	0	31,376
Jan-2015	2,325	40,255	0	42,580
Feb-2015	3,463	51,209	0	54,672
Mar-2015	4,624	63,606	47,356	115,586
Apr-2015	5,785	75,070	95,056	175,911
	Outstanding Amounts			
Mar-2015	1,161	12,397	47,356	60,914
Apr-2015	1,161	11,464	47,700	60,325

Source: Own calculations based on ECB data.

The calm start to the programme, increasing inflation, as well as inflation expectations (see Figure 2) has led to speculation of early tapering of the programme. This resulted in large--sell offs of sovereign bonds at the beginning of May. Yields, which decreased at the beginning of the programme, started increasing (see Figure 2) and the euro appreciated against the dollar. This can be generally perceived as a market correction and a signal that investors are prepared to take more risk and diversify their portfolios towards more risky assert – precisely the effect that QE aims for.

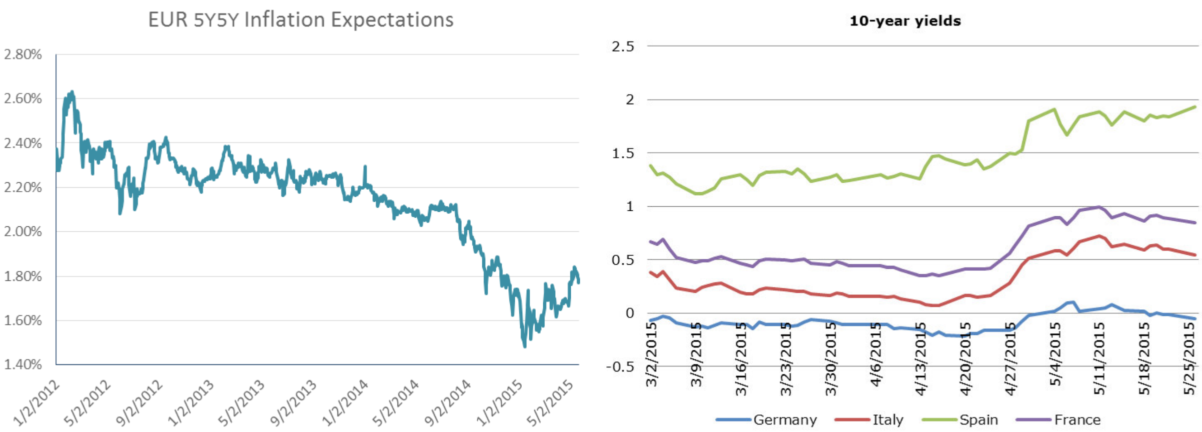
Going forward, Benoit Coeure, ECB Executive Board Member, signalled that the ECB is prepared to ‘moderately frontload’ bond purchases. He explained that although purchases were very strong in the first three months of the programme, summer months are typically slower in primary-market issuance in the covered-bond market. Therefore, such strong issuance and purchases might not be observed in subsequent weeks. To avoid liquidity problems, Mr. Coeure stated that the ECB intended to increase asset purchases in May and June, ahead of an expected low-liquidity period in the summer months (Coeure, London, May 18). In response to his remarks, the euro depreciated, leading to a surge in bond prices, and declining yields (see Figure 2). These developments raised again the issue of sovereign market volatility, which may lead to mispricing as well as impairment of the much needed pass-through from banks' borrowing to lending rates.

Table 5. ECB's country holdings and duration under PSPP

Country	Max monthly	Holdings		Change	Duration	
		Mar-15	Apr-15		Mar-15	Apr-15
Germany	10.8	11.06	22.21	11.2	8.12	7.9
France	8.4	8.75	17.38	8.6	8.22	7.84
Italy	7.4	7.6	15.19	7.6	9.07	8.41
Spain	5.3	5.44	10.91	5.5	11.66	9.73
Netherlands	2.4	2.49	5.01	2.5	6.71	6.97
Belgium	1.5	1.53	3.06	1.5	8.8	9.1
Austria	1.2	1.22	2.42	1.2	7.79	7.99
Portugal	1.1	1.07	2.16	1.1	10.96	10.77
Finland	0.8	0.77	1.56	0.8	7.26	7.15
Ireland	0.7	0.72	1.46	0.7	9.43	9.14
Slovakia	0.5	0.51	1.03	0.5	9.49	9.26
Others	2.0	0.3	0.82	0.5	6.85	6.45
Slovenia	0.2	0.21	0.43	0.2	6.33	7.92
SUPRA		5.68	11.43	5.8	7.26	8.05
TOTAL	42	47.36	95.06		8.56*	8.25*

Source: Bloomberg, own calculations; *the numbers indicate weighted average remaining maturity in years.

Figure 2. Inflation Expectations and Bond Yields



Source: Own calculations.

The downward pressure on the yield cure as a result of the aggressive bond buying in the first two months of the programme also created increased volatility in repo markets. Since early Feburary, German repo rates, which typically trade close to the benchmark overnight rate, have widened from 4 basis points to 11 basis points (Golman Sachs). In response, at the beginning of April, the ECB introduced a ‚securities lending' framework setting out how it will loan bonds back to banks to avoid distortions or shortages in repo markets. It included a fixed borrowing term of one week with the option to roll over loans three times, and imposed limits on the amount of any single bond that can be borrowed by a counterparty. However, it was also stated that the NCBs have „some flexibility" to adapt the framework to suit their own needs. The introduction of the security lending program in April does seem to have improved repo market liquidity.

4. The ECB and risk-sharing arrangements

The second major issue of concern arising from the EAPP relates to risk-sharing arrangements under the PSPP. Although the absence of full profit and loss sharing between euro zone countries under the PSPP has received relatively less attention as of late, it was extensively discussed around the time that sovereign QE was announced.

The most thorough recent treatment of this topic is that of Willem Buiter (Buiter, 2015). As Buiter points out, unlimited risk-sharing among the NCBs participating in the euro system eliminates the hazard that even if the consolidated system remains solvent, an individual NCB may become insolvent, which is possible when risk sharing is limited. Rather, with unlimited risk sharing, you have one system in which the central bank can always monetise debt.

Before the onset of the debt crisis in Europe, the ECB was a lender of last resort to any NCB in the euro zone. This changed when under the Emergency Lending Assistance (ELA), the NCBs were allowed to purchase assets or extend collateral lending at their own risk, i.e. the national central banks are largely responsible for taking lending decisions under the ELA, and so must bear any profits or losses that might result. Additionally, in 2011, the ECB allowed NCBs to extend certain loans in exchange for collateral generally not accepted in the euro area (Buiter, 2015).

When sovereign QE was announced, the Governing Council decided that only purchases of securities from the European institutions (SUPRAS), in addition to purchases conducted by the ECB, would be subject to risk-sharing. Table 2 shows that only 20% of purchases under the PSPP (or €173.6 billion) is subject to mutual loss sharing (12% of bonds purchased from SUPRAS and 8% of ECB purchases). The purchases under CBPP3 and ABSPP are also subject to mutualisation (i.e. risk-sharing). Assuming the duration of the EAPP program to be 19 months, it can be estimated that the NCBs will take on risk worth around €738.4 billion (given liquidity constraints, this estimation represents an upper bound). As pointed out by Buiter (2015), this increases the probability of an individual sovereign default despite the whole system remaining solvent. This probability is higher the larger the NCB balance sheets and the larger the exposure to one borrower.

What could be behind the ECB's withdrawal from full risk-sharing? Some member states – notably Germany – have argued that the lack of full risk-sharing is appropriate, since sharing of risk reduces the incentive to run unsustainable fiscal policies. This view is reflected in some of the statements of members of the ECB. For example, ECB Executive Board member, Peter Preat, has stated that partial risk-sharing corresponds roughly to the current allocation of fiscal responsibilities in the euro area[13]. Under this approach, the distribution of risk preserves needed discipline of euro area governments (Preat, March 2015).

There are a number of important consequences of limited risk-sharing in the euro area. Some have argued that a retreat from full risk-sharing sends a negative signal to markets that the ECB is no longer a 'joint and several' institution, which runs counter to the principles of the common currency area, in which one monetary authority serves the needs of the entire area (Wolf, 2015). This view is shared by Paul De Grauwe who states that the ECB's movement in the direction of 'juste retour' leads to a loss in the unity of action in monetary policy (January 2015). Additionally, limited risk sharing could hypothetically lead to a situation in which some NCBs refuse to participate in the programme, again impacting the credibility of the programme, as well as a stability of the bond market (although the later depends on the share of a country in the programme). Buiter has gone further to argue that without full risk-sharing, the euro system cannot be seen as consolidated and that it looks more like a system of 19 currency boards with a peg to the euro, any of which could become insolvent (Willem Buiter, March 2015).

The consequences of default for the NCBs and the whole euro system without full risk sharing differ from those under full risk sharing. Under full risk sharing, since the ECB provides liquidity to banks, it can always issue more money and remain solvent (although most likely not without conditionality). Although ECB liabilities will increase, the euro system as a whole remains solvent as along as the ECB's Governing Council decides to generate sufficient seigniorage[14]. This is because the future income of a central bank is an asset available for current lending (Buiter 2015)[15]. Although nobody 'pays the bill', since there is more money in circulation, there

[13] See 'Public Security Purchases and monetary dominance in a monetary union without a fiscal union, a contribution to the panel of low-interest-rate policy and non-standard monetary policy'. Frankfurt am Main (March, 2015).

[14] Revenues from base money creation in the euro area are distributed among member states according to their capital key. In the eruo zone, seiniorage is divided among the 19 NCBs in proportion to their capital key. National banks pass it to the respective governments.

[15] Buiter (2008) argues that the discounted present value of future seigniorage should be included as an asset on the balance sheet of the central bank implying a large capacity to sustain losses.

is a trade-off between higher inflation and solvency. The impact on inflation – among other things - depends on the size of the debt being monetized.

This framework changes when the risk among member states is not fully shared. In the situation when national banks carry their own risk but are in the euro area, they do not control their future seigniorage revenues and therefore can become insolvent (since the voting system is based on the capital key (see Table 1), the individual NCBs only receive a fraction of the ECB's profits). The euro system is no longer fully consolidated and although the whole system can still remain solvent, the individual NCBs may become insolvent.

The implications for the euro system as a whole then depends on whether an insolvent NCB stays in the euro area or exits. In both cases however, there is an ex-post loss sharing for the euro system regardless of the arrangements under the ELA or PSPP.

In the case when the NCB exits the euro area, since assets from the exiting member state are backed by euros and since now they do not carry any value, the losses would be shared by other national central banks via the Target 2 balances (the ECB would record a loss on its balance sheet which is then redistributed to the other NCBs according to their capital key). As Mr. Draghi has stated, should a country default, the euros created - which remain liabilities of the euro system - would remain in circulation and be fungible across the euro zone (Draghi, 2015)

The situation becomes more complicated in the case where the insolvent NCB stays in the euro zone. Since any direct participation of the ECB in debt restructuring is illegal and considered by EU law as monetary financing, it is difficult to see how such restructuring would happen (the insolvent NCB would have to force its creditors - including the ECB - to write off losses). Also, as Buiter point out, the ECB has stated that in the PSPP the euro system (i.e. the NCBs) will be pari passu with private purchases of the same public debt instrument. Thus, the pari passu rule essentially eliminates the ability of a government to issue new debt that its NCB then places on its balance sheet, as such action would give preferential treatment to the NCB over private purchases. Moreover, as an insolvent NCB is no longer an eligible counterparty for the rest of the system via TARGET 2, with time, it would be forced out of the monetary union (Buiter, 2015).

From the above discussion, it is clear that the ECB's QE programme retreats from full risk-sharing. Member NCBs can default. And while the potential losses from the default of a NCB will be shared by the euro system, the unity of the euro system is at risk, since insolvent countries may be forced out of the union and richer members may chose not to bear the losses. This is different from a system with full risk-sharing, where the debt of the NCBs can always be monetised at the cost of higher inflation. Although when member states exit the euro system, the financial consequences for the system are similar to those under full risk sharing, under partial risk-sharing, the existence of the entire euro zone is at stake as it is highly unlikely that an insolvent member state would be able to continue to stay in the Union.

This gives rise to the important question of how likely defaults are among the EA members under the QE programme.

Under the PSPP, NCB defaults are likely to be caused by the debt of their governments. Benink and Huizinga (2015) have attempted to assess the likelihood of default by estimating of the loss absorption capacities of NCBs in the euro area, weighed against their income from seigniorage and the value of exposure to public debt under the PSPP. Their results show that if the present discounted value of NCB current and future seigniorage revenues are taken into account, all NCBs will be able to bear any losses stemming from sovereign debt purchases under the current round of QE. The limits of the loss absorption capacities of some NCBs, however, are reached under a low growth scenario, or if the NCBs have to acquire higher percentages of their sovereign debts.

5. Conclusions

This brief addressed two issues related to the ESPP: the impact of potential scarcity of sovereign bonds to be purchased under the programme and the absence of full profit and loss sharing by NCBs.

As shown in Section 2, there are grounds to be concerned about the scarcity of available bonds for purchase over the life of the programme. This should be carefully managed. However, in the first three months of the programme, implementation has run smoothly, although there has been some volatility in the bond market. So far, however, there has been sufficient flexibility in the system to manage challenges, in keeping with the outcome predicted by Mr. Draghi (Draghi, April 2015). ‘Securities lending’ helped stabilise the repo markets and bond ‘frontloading’ helped prevent market volatility due to the expectation of low liquidity over summer. This flexible approach has been well received by markets.

Nonetheless, if not appropriately managed, the volume of bonds available for purchase could be an issue. To help the situation, the ECB could change the 25% issue limit or enlarge the list of eligible agencies (if such can be found) in countries which face the danger of reaching the limits before the programme expires.

In the second part of the brief, the issue of limited risk-sharing was discussed. The ESPP does represent a withdrawal from full risk sharing. Estimates suggest that approximately €738.4 billion of the ESPP will not be subject to risk sharing.

It has been argued that this increases the probability of an individual sovereign default despite the whole system remaining solvent. Defaulting countries may be forced to exit the euro area. Non-defaulting countries may prove unwilling to bear the costs of such exits, both of which would threaten the unity of the euro area. However, studies suggest that, at present, all NCBs should be able to bear losses stemming from sovereign debt purchases under the current round of QE.

References

Aksu, Cagdas, Philippe Gudin, and Giuseppe Maraffino. *One Month of QE*. Barclays Economic Research, April 2015.

Alvaro, Leandro, Gregory Claeys, and Allison Mandr. „European Central Bank Quantitative Easing: The Detailed Manual." *Bruegel Policy Contribution* 2015/02 (March 2015). http://www.bruegel.org/publications/publication-detail/publication/872-european-central-bank-quantitative-easing-the-detailed-manual/.

Benigno, Pierpaolo and Salvatore Nistico. *Non-Neutrality of Open-Market Operations*. Rome: LUISS Guido Carli, Department of Economics (2015).

Benink, Harald and Harry Huizinga. *The ECB's Bond Purchase Programmes and the Limits of National Risk-Sharing*. May 2015. http://www.voxeu.org/article/limits-eurozone-national-risk-sharing.

Buiter, Willem H. „Can Central Banks Go Broke?" *CEPR Policy Insight* 24 (2008).

Buiter, Willem H. „The Euro Area: Monetary Union or System of Currency Boards?" *Global Economics View* (2015).

Coeuré, Benoît. "Interview with L'Economie politique." interview by Sandra Moatti. European Central Bank, May 19, 2015. https://www.ecb.europa.eu/press/inter/date/2015/html/sp150519_1.en.html.

DeGrauwe, Paul. „Quantitative Easing and the Euro Zone: Sad Consequences of the Fear of the QE." *The Economist*, January 21, 2015. http://www.economist.com/blogs/freeexchange/2015/01/quantitative-easing-and-euro-zone.

Draghi Mario. *Introductory statement to the press conference (with Q&A)*. European Central Bank, April 2015.https://www.ecb.europa.eu/press/pressconf/2015/html/is150122.en.html.

European Central Bank. *Implementation Aspects of the Public Sector Purchase Programme (PSPP)*, March 2015. https://www.ecb.europa.eu/mopo/implement/omt/html/pspp-qa.en.html.

European Central Bank. *Q&A on the Public Sector Purchase Programme*, April 2015. https://www.ecb.europa.eu/press/key/date/2015/html/sp150311_1.en.html.

Fawley, Brett W. and Christopher J. Neely. „Four Stories of Quantitative Easing." *Federal Reserve Bank of San Francisco Review* (2013).

Holbek, Sverre. „QE Details 4: SSAs on Draghi's Shopping List – but is there enough?" *Danske Bank Markets, Fixed Income Research* (2015).

Preat, Peter. *Public Sector Surchases and Monetary Dominance in a Monetary Union without Fiscal Union*, ECB, Conference: The ECB and Its Watchers XVI, March 2015.

Wolff, Guntram. *Sovereign QE and National Central Banks - leaving national central banks to carry the default risk is impossible and dangerous*. Bruegel, January 2015. http://www.bruegel.org/nc/blog/detail/article/1540-sovereign-qe-and-national-central-banks/.