Liquid Insight

Quantitative limits to quantitative easing

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Rates and Currencies Research
Global

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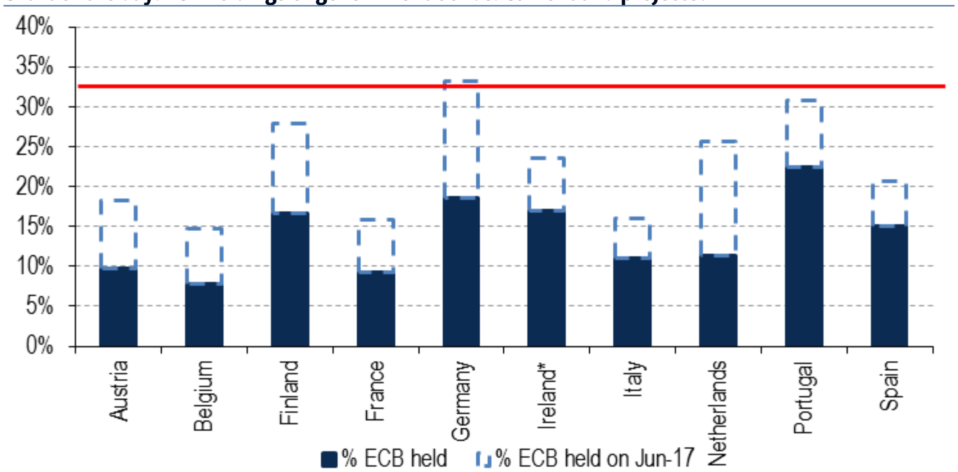
Recent Liquid Insight Publications

Key takeaways

- The recent rally in Bunds has reignited the scarcity debate in the Eurozone. We look at those most at risk of the 33% limit
- While many investors expect a QE extension past Mar-17, few have considered how the ECB would actually achieve this
- Here we examine the various possible solutions and their market impact. Redistribution of capital key appears most feasible

By Ruairi Hourihane, Ralf Preusser and Erjon Satko

Chart of the day: ECB holdings of government bonds: Current and projected



Source: BofA Merrill Lynch Global Research.
*Holdings in Ireland may be higher due to the Eurosystem's acquisition of Irish government bonds as part of the promissory note exchange

ECB will likely hit QE limits in Germany in 2Q17

The duration extension of national central banks' (NCBs) purchases is exerting mechanical flattening pressure on the curve, and raising questions about the sustainability of the QE program. At the same time, our economists expect the ECB to announce a continuation of QE beyond March 2017 at its September meeting. Our economists addressed some of the ECB's options in theoretical terms. We provide some numbers.

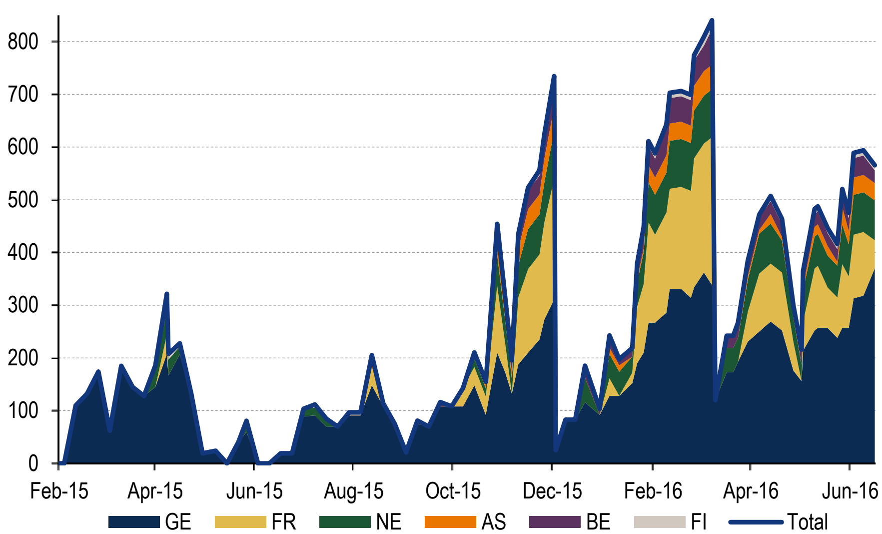
Whilst these questions are dependent on the level of yield (specifically, the proportion of bonds trading below the deposit rate), we expect the ECB to hit the 33% limit in Germany sometime in Mar-Jun 2017. So we think the ECB will have to address departures from the current purchase methodology to be able to commit credibly to a QE extension beyond March 2017. In our view, abandoning a strict application of the capital key is the only option that would deliver meaningful return. Specifically, we believe the Bundesbank increasing its purchases of supras would allow QE to continue up to December 2017.

Scarcity issues complicated by Bund rally

The combination of the decline in yields below the deposit rate, and reduced FX reserve selling, has forced the Bundesbank out the curve in search of bonds, exacerbating flattening pressures. With yields up to 5.5 years trading below the deposit rate, €328bn of German fixed coupon bonds (or 44% of the total eligible) is excluded from QE (Chart 1). While this is in line with levels reached in December and March, both these instances were driven by ECB rate cut expectations, which were eventually delivered on and alleviated pressure (albeit temporarily).

This time around, however, our economists do not expect further rate cuts. Furthermore, significantly higher yields may not necessarily materialize following a "remain" vote in the UK's EU referendum, given investors are actually short duration going into the vote. A quick fix to the current scarcity situation therefore looks unlikely, even though we do expect Bunds to reprice into a slightly higher trading range on a "remain" vote. Even a repricing higher of German yields back to April levels would only delay hitting the 33% limit by 1-2 months.

Chart 1: 2-31y fixed coupon Euro Government bonds trading below the deposit rate (€bn)



Source: BofA Merrill Lynch Global Research

Taking stock of where we are: Germany, Portugal and Finland stand out

The three main self-imposed constraints on QE are (1) buying bonds according to the capital key; (2) not buying bonds yielding less than the deposit rate; and (3) not buying more than 33% of any one issuer (calculated on the basis of eligible bonds only). The Chart of the Day shows Germany, Portugal and Finland appear most at risk of hitting the 33% limit.

Two key adjustments need to be applied to the ECB's published figures: First, it is important to adjust both numerator and denominator to take into account "bond roll-offs", ie, bonds that were previously purchased and are no longer eligible (either because their maturity has dropped below two years, or their yield below -40bp), to avoid overestimating especially Germany's holdings. Second, one needs to adjust cash purchases (reported by the ECB) to notional purchases, again critical for Germany.

We also assume that (1) PSPP purchases are allocated according to notional outstanding amounts between govies, agencies and regions; (2) covered bond, ABS and corporate bond purchases would amount to around €14bn on average per month; and (3) SSA purchases continue to amount to 10% of total PSPP flows.

Looking ahead: 2Q17 critical for Germany

Table 1 below shows our forecasted evolution of ECB holdings over time. With the current shape of the curve and current issuance/purchase patterns, we project Germany to hit the 33% limit sometime in Mar-Jun 2017. Once close to the limit, purchases in Germany will be limited to one third of the size of eligible market value of supply; this latter is estimated at €6bn per month on average. The following quarter Finland is also expected to reach the limit, followed by Portugal in September 2017.

With regards to the projections in Ireland, Portugal, Italy and Spain, we are assuming ECB SMP holdings will gradually fall off the eligible maturity bucket in line with the (over time) decreasing average remaining maturity: despite maturities dropping below two years for these countries, we may still underestimate ECB's holdings, particularly in Portugal and Ireland. Table 1 also suggests purchases in Italy, Belgium and France could continue the longest.

Table 1: Projected share of Eurosystem holdings of QE eligible government bonds

Country	Mar-17	Jun-17	Sep-17	Dec-17
Austria	17%	18%	20%	22%
Belgium	13%	15%	16%	17%
Finland	26%	28%	30%	**33%**
France	14%	16%	17%	18%
Germany	30%	**33%**	**33%**	**33%**
Ireland*	22%	24%	25%	26%
Italy	15%	16%	17%	18%
Netherlands	22%	26%	29%	**32%**
Portugal	29%	31%	**32%**	**34%**
Spain	20%	21%	23%	24%

Source: BofA Merrill Lynch Global Research, *Holdings in Ireland may be higher due to promissory notes purchases by the Irish CB

Trying to extend QE beyond 2Q17: The options

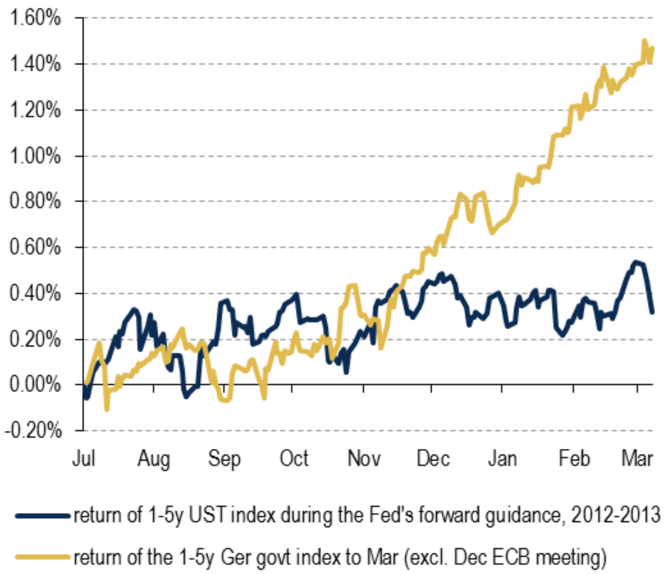
We quantify the main options recently proposed by our economists:

1. Buying below the deposit rate – the opportunity has passed

While we thought this was the best option back in March, we now think the window for such a move may have passed, given the likely front-end rally and already sensitive German public opinion to low/negative rates. This option would also provide further capital gains to investors in the front-end of core curves–similar to rate cuts–and impede the already fragile portfolio rebalancing channel of QE in the Eurozone (Chart 2).

Buying below the deposit rate has its advantages. Such a move would add €328bn of currently ineligible German bonds to the QE program and take the ECB's holdings of Bunds to just over 14%. The move would also shift QE purchases back into the belly of core curves and alleviate some of the long-end flattening pressure, to the benefit of life and pension funds in the Netherlands and Germany in particular. However, the flip-side and potentially a larger concern for the ECB may be a subsequent rise in long-end real rates and tightening of financial conditions, akin to last year's Bund tantrum. As Chart 3 shows, the move higher in rates at the time was almost entirely driven by real yields.

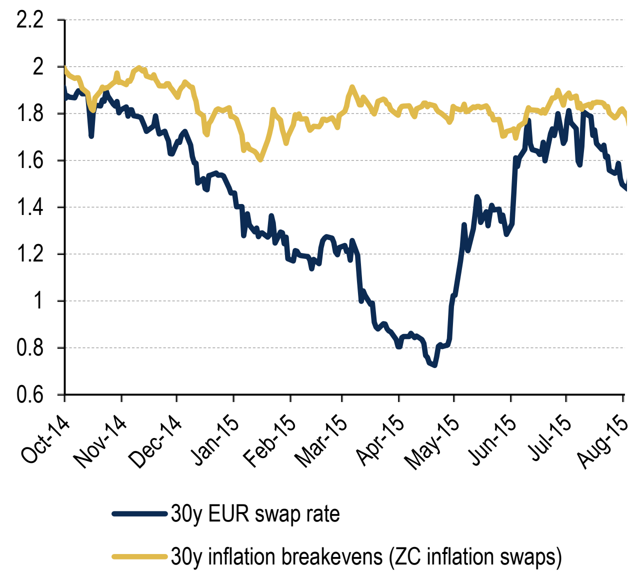
Chart 2: Unlike the US, the portfolio balance channel in Europe is impeded by the solid returns in the front end of the risk free curve, driven by rate cut expectations



Source: BofA Merrill Lynch Global Research

Chart shows cumulative return of the BAML 1-5y UST index (GVQ0) between Jul 12-Mar 13 vs. the cumulative return of the 1-5y GER index (GVD0) from Jul 15-Mar 16, excluding the Dec meeting

Chart 3: Most of the move higher in yields during last year's Bund tantrum was driven by real yields, with inflation expectations barely moving. Financial conditions subsequently tightened



Source: BofA Merrill Lynch Global Research

2. Applying capital key to aggregation of corporate and sovereign bonds

While technically feasible, we believe it is unlikely to be the ECB's preferred option. In fact, such an option may actually only reduce German sovereign purchases by about €0.5bn/month, according to our calculations, using one particular example framework. Ultimately, however, such a move would also require purchases of almost €3bn/month of German corporates, a significant departure from the ECB's proposed CSPP benchmark (Table 2). Here the ECB aim to buy just €1.2bn/month of German corporates in a €7bn/month program. Again, while not outside the realms of possibility, our credit strategists remain somewhat skeptical, with the move exacerbating the funding spreads between German and peripheral corporates.

Table 2: Likely CSPP Index

Country	Proportion of Index (%)	Monthly purchases in €7bn CSPP program
FR	30.3%	2.1
NL	20.3%	1.4
DE	17.3%	1.2
BE	7.3%	0.5
ES	6.6%	0.5
IT	6.0%	0.4
IE	5.5%	0.4
Others	7.0%	0.5

Source: BofA Merrill Lynch Credit Strategy

3. Raise 33% per issue limit on non-CAC bonds

While this is a very feasible option, we would stress this move would not signal the end of the ECB's problems, contrary to what some suggest. According to our calculations, raising the non CAC limit to 50% would free up €30bn of additional German purchases at current levels, sufficient only for around a four-month extension. Thus, while this may be an avenue the ECB eventually go down, it will likely have to be accompanied by other tweaks to the existing framework if the ECB want to stretch the program to September 2017 or beyond.

Most interesting is the fact non-CAC German govies are primarily focused around the 18-28y sectors, where German issuance is non-existent. Thus we expect such an announcement to further increase flattening pressure and spur long-end outperformance.

4. Substitute purchases

As our economists suggested, once a national central bank runs out of local sovereign bonds to buy after hitting the 33%, its monthly "allowance" (purchases by capital key) would be redistributed across the other NCBs, in proportion to the capital key or otherwise. In our view, this is one of the most feasible options for the ECB and, in fact, is one they seem to be practicing, even though it may be small. Table 3 highlights how this would benefit Italy, France and Spain.

Table 3: Projected deviation of flows (assuming substitute purchases split by capital key)

Country	Mar-17	Jun-17	Sep-17	Dec-17
Austria	-	1.2	1.3	1.9
Belgium	-	1.7	1.9	2.7
Finland	-	0.8	-1.4	-2.1
France	-	8.8	9.8	13.9
Germany	-	-18.3	-18.7	-20.9
Ireland	-	0.8	0.9	1.3
Italy	-	8.7	9.6	13.7
Netherlands	-	2.2	2.4	-3.5
Portugal	-	-0.9	-1.2	-2.3
Spain	-	5.9	6.5	9.2

Source: BofA Merrill Lynch Global Research. Numbers are expressed in EUR bn, end of month.

Redistribution of capital key already in evidence, albeit small

Table 4 below outlines how total sovereign purchases in May varied from the long run average, in both percentage terms and €bn. As the QE program was increased to €80bn, smaller nations in danger of breaching the 33% limit had to engage in substitute purchases of supranational bonds. This left the remaining required sovereign purchases to be split among the other national central banks. Unsurprisingly, these additional purchases were predominantly skewed toward Germany, with the ECB buying about €0.5bn/month extra of German govies compared to what the long run average would imply.

More interesting, however, is the fact Italy and Spain received 23% and 15% of the additional purchases, despite capital keys of just 18% and 13%, respectively. While this is small it may suggest some openness by the ECB to engage in larger QE purchases in the periphery than strictly suggested by the capital key.

Table 4: Additional sovereign purchases were directed towards Germany and Italy in May

	Deviation of purchases from long-term average	In €bn terms	Proportion of additional purchases received
Austria	0.1%	0.1	4%
Belgium	0.1%	0.1	4%
Germany	0.6%	0.5	31%
Spain	0.3%	0.2	15%
Finland	0.0%	0.0	2%
France	0.3%	0.2	13%
Ireland	-0.2%	-0.1	-
Italy	0.5%	0.3	23%
the Netherlands	0.1%	0.1	7%
Portugal	-0.6%	-0.4	-
Others	-1.3%	-0.9	-

Source: BofA Merrill Lynch Global Research, ECB

Supras may be the answer for the Bundesbank

These substitute supra purchases raise an interesting potential solution to the Bund scarcity problem. Just like the smaller nations have done, the Bundesbank could quite easily engage in €3.5-4bn of substitute supra purchases per month, which would be subsumed under the 10% supra allocation in the PSPP. Such purchases would come from the Bundesbank's capital key (or monthly allowance) and would reduce German sovereign purchases to just €4bn per month, a far more manageable number. Furthermore, there is a sufficient amount of supranational bonds outstanding to continue purchases up to December 2017, in our view. According to our calculations, the ECB would only hold about 40% of total supras outstanding by end=2017.

Should the Bundesbank go down the supra route, a significant amount of residual sovereign purchases would be required. We expect the periphery and Italy in particular to be the largest beneficiary, with between €1-1.5bn extra of Italian govies potentially being purchased every month.

Notable Rates and FX Research

* Global Rates & Currencies 2016 Year Ahead, 23 November 2015
* A down week for EUR, FX Quant Trader, 20 June 2016
* The Moment of Truth, Global Rates and FX Weekly, 17 June 2016
* Looking across the pond, again, US Rates Weekly, 17 June 2016
* After the Breferendum: positions at risk, Liquid Cross Border Flows, 20 Jun 2016

Key trade ideas

Top Rates and FX trades for 2016

For rationale and details, refer to Global Rates & Currencies 2016 Year Ahead: The "Great Divorce", 23 November, 2015

Rates:

Buy US 30y TIPS, entry: 1.2%, target: 70bp, stop loss: 1.55%

Closed at 101bp (3 Mar 2016): Short USD 5y5y vs EUR 5y5y, entry: 115 bp, target: 160 bp, stop-loss: 90 bp (3 Sep 2015)

Long $100mn 6m5y ATMF UK vs $100.75mn US rates straddles, net take-in: $126K, target: +450K, stop: -$225K

Sell 3y Fannie Mae debt vs Treasuries, entry: 6bp, stop: 2bp, target: 20bp

Closed at 11bp - Long 12m Treasury bills vs OIS, entry: 1bp, target: -10bp, stop: 7bp

FX:

Closed at 6.5630 (26 May 2016): Buy USD/CNH 6m forward outright, entry: 6.5260, stop: 6.40

Long a 12m USD/CNH forward outright, entry: 6.7485, target 7.00, stop: 6.67, current: 6.7420 (26 May 2016)

Closed at 0% - Buy EUR/USD 3m 1.10 call with a 16 Dec 1.1050 window KO, cost: 0.55% EUR (spot: 1.0690)

Buy 1y EUR/USD<1.00, USD/JPY<120 dual digital, cost: 7.0% USD (spot: 1.0690, 122.80)

Closed at 902 (10 Mar 2016): Buy AUD/KRW, entry: 832, target: 920, stop: 859 (revised from 790)

Closed at 38.25 (18 Apr 2016): Sell TRY/JPY, entry: 43.40, target: 36.15, stop: 45.25

Closed at 8.27: Sell USD/NOK spot 8.685, target: 8.27, stop-loss: 8.60 (revised from 9.00)

New trade

Rates:

Buy 167 Aug RXU6 call and buy 162 put, cost 118 cents(16 Jun 2016)

*A cheap way to protect tails against a further pronounced repricing of rates as Brexit risks seem binary at the stage.

Existing open trades

Rates:

Receive NZ 2y swap, pay AU 2y swap, entry: 48bp, target: 20bp, stop-loss: 62bp (24 May 2016)

* The RBNZ has a stronger dovish stance than the RBA even if there is some doubt over a June rate cut in NZ. A spread position removes direct exposure to global rates. There is more scope for AU rates to reprice in the near-term.

Sell the SPGB Apr21 and buy the BTPS May21, entry: -0.6bp, target: 11bp, stop: -7bp (27 Apr 2016)

* The Spanish new elections and the country's budgetary concerns may cause some SPGB underperformance

OATei 2018/2027 flattener; entry: 78.5bp, target: 40bp; stop-loss: 100bp (11 Mar 2016)

* We see ECB developments favoring real yield curve flatteners in four ways. A fifth support is near- and longer-term carry.

Buy 3-year 3.5% ZC RPI inflation caps, entry: 26.0c; current 37.5c (21 Oct 2015)

*Sterling vulnerability due to the UK's large current account deficit makes being long inflation volatility attractive. Pairing this trade with a long-standing recommendation to be short 30-year UK breakevens is an attractive way to finance it.

FX:

Buy 3m EURCHF 1.08/1.03 put spread for 0.76% Eur (7.75/8.05 ag 10.45 vols off 1.0930 spot)(1 Apr 2016)

* EUR is underpricing Brexit and that shorting Euro was a cheaper way to express such a view via options. CHF tends to perform strongly when risks become more localized.

Buy EUR/USD 6m 1.00/1.20 strangle for 155 usd pips (off 1.1020 spot, DF two-way vols 12.1/12.3) (29 Feb 2016)

*Owning low delta EURUSD strangles may be an effective and cheap double hedge in the scenario that either the US enters a recession or the European debt crisis resurfaces.

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