

European Rates Weekly

ECB reinvestment details before year end

- **No great shakes from the ECB but they will provide APP reinvestment details at Oct18 or Dec18 meetings. Reference to combating portfolio aging is a bull flattener. Draghi expressed confidence that an improving jobs market would eventually translate to higher HICP. This is sound logic given past wage-HICP dynamics. Breakevens already have a hefty risk premium on this theme and we continue to trade low-flation themes.**
- **New trades: #1 Bund ASWE widener; #2 OATei21-20 break-even steepener**
- **Euro inflation – fading richness of front-end:** Front-end euro break-evens have performed well, helped by the rally in oil prices. This rally seems to be losing steam now. We recommend OATei21-20 break-even steepener following a sharp flattening recently, surprisingly when OATei21 might be reaching the end of its re-opening cycle. Separately, OATei21 also looks cheap on the OATei20-21-22 real yield fly.
- **Rich GBP midcurve implied vol vs. USD:** The premium of GBP midcurve implied vol over USD midcurve looks excessive on the 4y1y forward swap tenor for expiries above one year.
- **Supra RV versus semi-core:** The supra segment decoupled from agency and (semi-core) EGBs. With funding well advanced, we like step-up in quality trades ahead of an eventful number of weeks.
- **Merger activity in pfandbrief segment:** The next merger between pfandbrief issuers has been agreed upon. AARB will acquire DUSHYP. Meanwhile, pfandbrief spreads to sovereigns are near the 2-year wides.
- **Gilt auction preview:** We preview the £2.75bn auction of Oct28s next Thursday.
- **Supply:** Around €24bn of EGB supply next week is scheduled from Belgium (5/10/30/40yr), Germany (2/10yr), France (2-8yr) and Spain. The UK DMO will issue 1.625% gilt Oct28s next week.

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ECB reinvestment details before year end

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The ECB meeting and press conference was not a market mover though any small tilt was to the more hawkish side as Draghi again expressed confidence that the labor market will help inflation push higher and that Staff projections of 1.7% HICP are mandate consistent. They still only 'anticipate' net APP finishing at the end of this year but Draghi gives away the high hurdle for any extension.

The reinvestment policy has not been discussed but details will be provided before year end and markets are likely to speculate on the outcomes. Any move to prevent portfolio aging should be read as a bull flattener. We doubt the ECB will adopt an actual duration target because that leaves them with operation flexibility. The most obvious shift would be an extension to the current 3-month reinvestment wiggle room to 6-months. That way the purchases look like a constant stream of support.

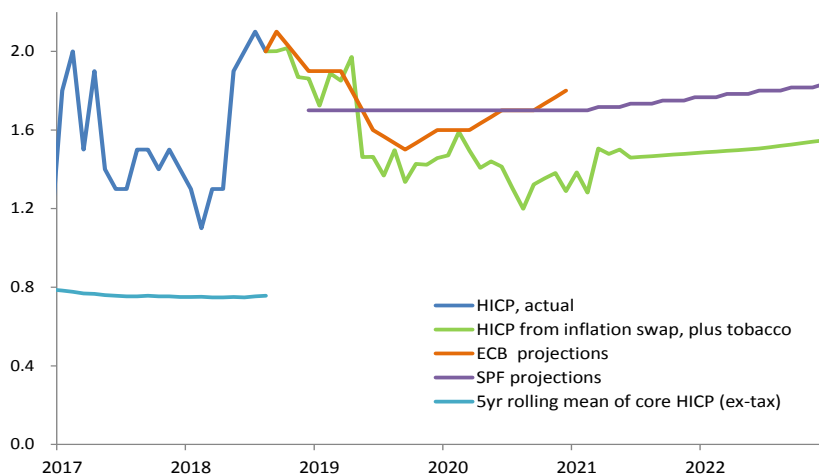
Should we warm to Draghi's enthusiasm that the labor market will push inflation higher? We have our doubts that the output gap takes HICP towards the ECB objective given the structural drop in periphery inflation trends. Nonetheless, the market should be alert, because the absence of a Phillips curve between US unemployment and core inflation does not carry over to Europe. That infers a steep breakeven curve and judging by 5y5y versus core HICP the risk premium is already sizeable.

1. September ECB did not shake any trees
2. Wage-price relationships – worry not about Treasuries but Bunds.
3. Another German issuance cut?
4. Italy update and what looks cheap-expensive to the move in BTPs?

1. The September ECB

The September ECB meeting had little new to move markets but any skew was to the mildly bearish side. That follows from commentary that staff projections of HICP at 1.7% are mandate consistent and we again had expressions of confidence in the recovering labor market's ability to push inflation trends higher. (We discuss this jobs market-inflation link below because it exists in Europe, not in the US, but see markets adequately pricing the risk premium.)

Figure 1. ECB staff projection on HICP, where Q420 is 1.8% and inflation swaps* are 1.3%



Source: Citi Research,

*including an assumption on tobacco

That means the ECB merely ‘anticipating’ the end of net purchases in 2018 is something of a fig leaf for having already decided to exit or at minimum puts a high hurdle for bad news to cause a deviation.

There was nothing in the Staff projections of great interest, even with a modest revision down in GDP growth in 2018/19. The Q418 inflation forecast stayed at 1.8%, though the core HICP for 2020 moved down from 1.9% to 1.8%. All these measures are well above the market’s estimate. For more on the ECB meeting, see [Euro Economics Flash - ECB: On Course to End QE, Focus on Reinvestments Next](#)

Reinvestment

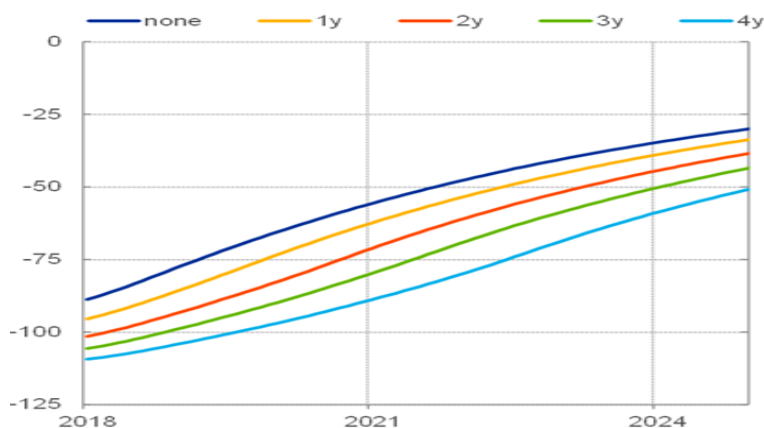
Draghi in response to a question on APP reinvestments stressed like last month that the ECB has not even discussed when they will discuss reinvestment but time is running low and said that this would take place in October or December meetings.

What should markets expect? There will be no fudging of the Capital Key with Draghi saying he was confident that this would be the guiding principle. That leaves a discussion on reinvestment duration adjustment and some technicals on the buying operation (e.g. amount of smoothing).

Duration extension on re-investments: The rationale for extending the duration of re-investments follows from the *portfolio ageing* effect. Peter Praet noted in a speech in March18 that the “effects of our purchases of long-dated assets on market yields are principally due to the fact that we withdraw duration from private hands, and as the securities we hold in our portfolio draw closer to maturity and “lose duration” progressively, the overall amount of duration contained in our portfolio has a tendency to melt away. And this gradual loss of duration will reduce downward pressure on yields”.

Figure 2 copies some analysis from Praet’s speech where he shows some evidence for the quoted comments, and where the 1y, 2y, 3y and 4y terms, represent the number of years that reinvestment is conducted. The fact these lines slope upwards can only be consistent with the average maturity of the portfolio falling as a function of time. It is technically possible for the average maturity of debt to rise over time if the ECB holdings are very skewed to short end paper that rolls off but this seems unrealistic on both purchase criteria and Praet’s speech.

Figure 2. Portfolio ageing effect on term premium



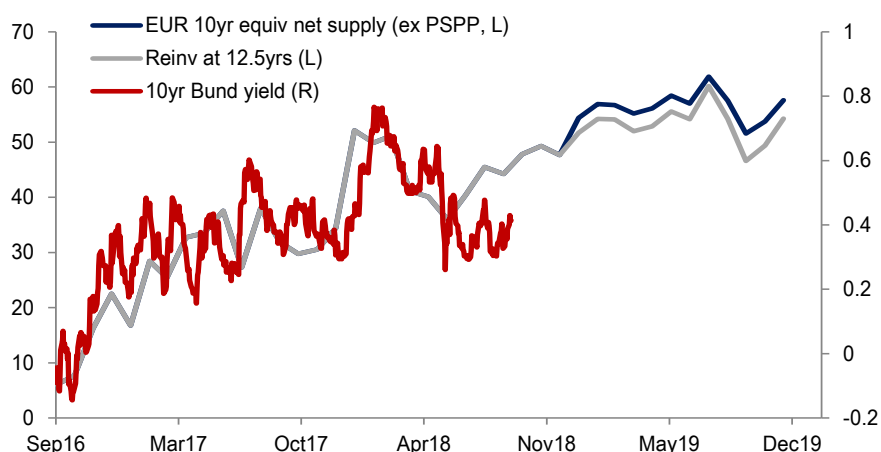
Source: Citi Research, ECB https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180314_2.en.html

- If the ECB wishes to stop the portfolio aging effect then the re-investments *must go longer* than the ECB's current principle of being market neutral by buying in proportion to the debt distribution.
- This is bullish for the bond markets because the ECB would not be taking out more bonds but would be *extracting more duration from next year's supply*.

The effect is shown in Figure 3 where the 10yr equivalent net supply measure – which adjusts for QE flow – with and without a duration twist (Germany/ Netherlands are excluded due to scarcity constraints). The duration twist (though no actual short end selling) could reduce Bund yields by around 10-15bp in 2019.

That is helpful for financial conditions but communication with the markets is not straight forward because announcing a formal new maturity target reduces ECB flexibility during times of stress and the ECB seldom gives up optionality.

Figure 3. Trying to stop the portfolio aging effect means reinvestments have to be longer (= bond bullish) and it's not hard to imagine getting longer still to steer financial conditions, if needed.



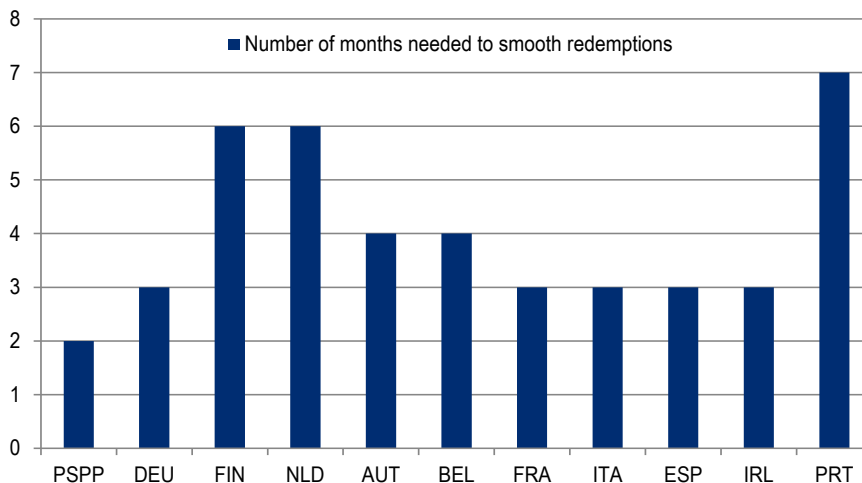
Source: Citi Research

What else could they do? The BOE has pointed to a rate threshold where the balance sheet will decline but we doubt this, or even a calendar date, on when the ECB stops re-investing will be part of the ECB messaging for some time. An interest rate threshold infers confidence in the location of neutral rates sit and the ECB has not attempted to communicate on this front.

Equally, it suffices to keep the language on reinvestment in its current format of “an extended period of time after the end of our net asset purchases, and in any case for as long as necessary to maintain favorable liquidity conditions and an ample degree of monetary accommodation.” The ECB optionality issue again.

A likely development on ECB reinvestments is the extension of the current 3-month window for the re-investments. This window does not serve smaller EGB issuers well because they have much lumpier bond redemptions calendars. Figure 4 shows the number of months that each issuer would need to smooth its re-investments such that the ECB gross buying volumes are close to constant over the course of the year. The lesson is that a 6-month window is the most appropriate shift and we think this is low hanging fruit for the ECB to look persistently active in markets (like the Riksbank which also needs to smooth lumpy redemptions) while having the benefit of keeping more dry-power to accelerate buying if the ECB wanted to send a message to bond investors.

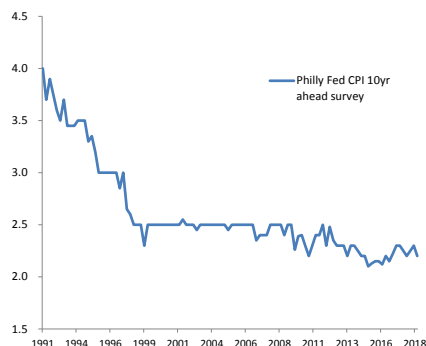
Figure 4. How many months does it take to smooth re-investments?



Source: Citi Research

So, net we think that any mention of counter-acting portfolio aging is a bull flattener. Praet's chart shows portfolio aging is worth over +10bp per year in term premium cheapening. Our baseline calculation on net 10yr equivalent supply shows a near 10-15bp bullish effect. Otherwise, the ECB retains optionality by not having a formal maturity target or end-date on reinvestment. The easy pickings are on a longer reinvestment window.

Figure 5. US inflation expectations – still unanchored*



Source: Citi Research, Bloomberg *Survey is 30bp below levels that prevailed during the period where the great moderation victory was assumed. That was consistent with PCE at 2%. The 1.7% implied inflation expectations is curiously very similar to the average since 1996 when trend inflation measures dropped below 2%.

2. Wage price relationship: more for bonds to fear in Europe

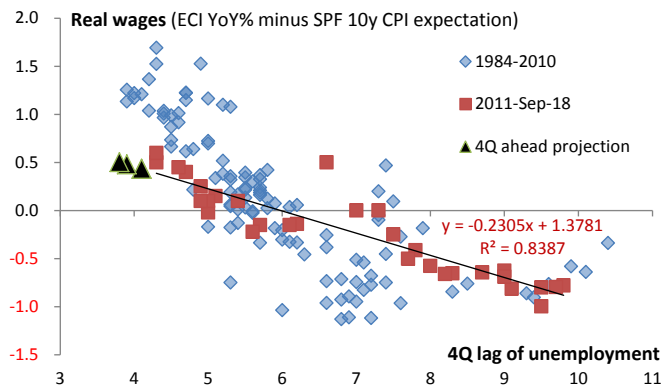
We started off last week by romancing the idea that the Fed may take a pause in its tightening cycle owing to tariffs and risk-management. The only good news in being wrong is that the related trade lasted only 12-hours as U.S. Hourly Earnings numbers blew way the consensus and predictably has the market pricing the Fed to keep going (until something breaks which is why the inversion in 2021 remains persistent).

Did we get the economics wrong? No. We already factored in gradual improvement in US real wages owing to the relationship in Figure 6 - but notice that (a) the trend improvement (based on knowing what the last 4Q of data has done) is rather tepid and [Citi economists point out AHE has been near 3% before in this cycle](#); (b) that a large part of the real wage gain in coming from the drop in inflation expectations.

Moreover, when we see higher U.S. wages (not accompanied by productivity gains) we think late economic cycle - owing to margin compression. That's because Figure 7 shows that there is no relationship between the US unemployment gap and core PCE (or core CPI) - and that has been the case since the mid-1990s when statistical measures of trend inflation dropped below 2%¹. *In other words the wage gains are not a reason to expect higher inflation but perversely if the Fed gains confidence in its outlook to add hikes the implication is that inflation expectations should fall.*

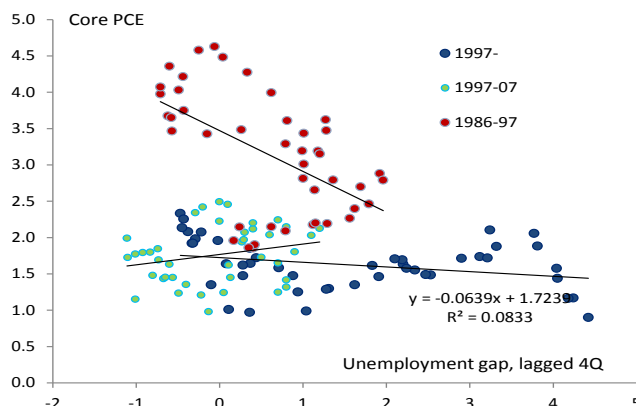
¹ See, "Core Inflation and Trend Inflation", NBER, Stock and Watson (2015). The authors say their complex Trend Inflation estimate adds little more information than the humble core CPI print. That means there is signal value in the ongoing low core prints - which investors are far too ready to dismiss.

Figure 6. US Phillips curve on real wages and unemployment gap



Source: Citi Research

Figure 7. ...doesn't exist between core PCE and unemployment gap



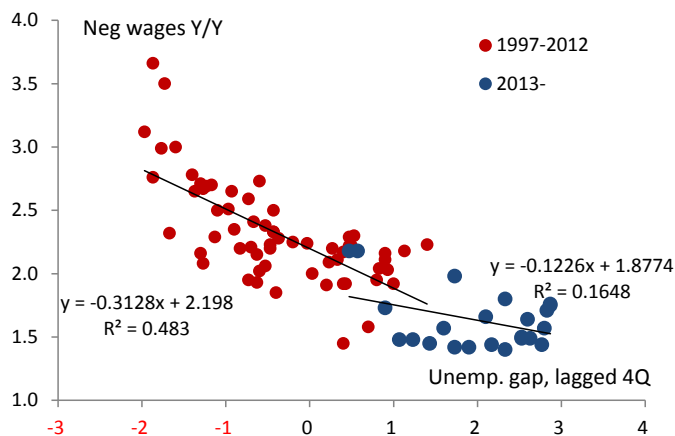
Source: Citi Research

Europe is different

This relationship doesn't carry over to Europe. Figure 8 shows the European unemployment gap versus ECB negotiated wages. The Phillips curve is steeper than the US which is consistent with more sophisticated approaches taken by the ECB and like the US version there is no discernable kink in the curve to alarm the markets.

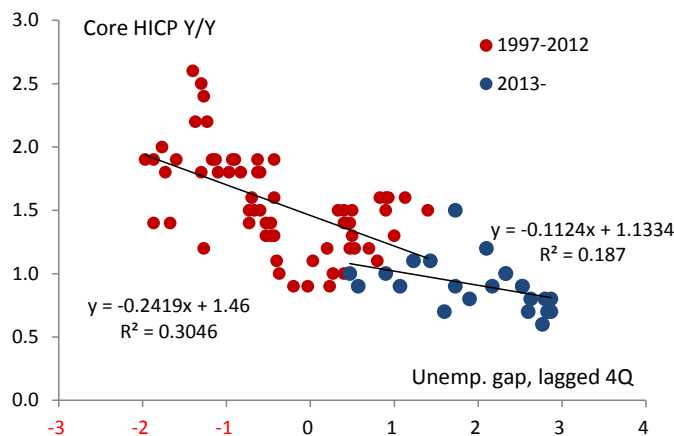
In contrast to the US however there is a relationship between wages and core HICP even if the relationship is rather fuzzy (Figure 9). That probably reflects the higher market segmentation in Europe versus US which means more pricing power for corporates.

Figure 8. € Phillips curve on negotiated wages and unemployment gap



Source: Citi Research, Bloomberg

Figure 9. ...(mostly) works for also for core HICP



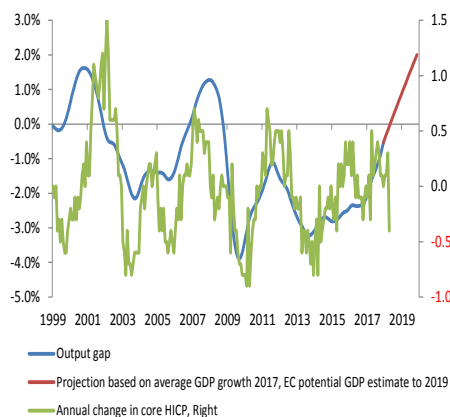
Source: Citi Research, Bloomberg

Does that mean incipient inflation? No. Firstly, not all measures of the output gap and inflation are working as they should. Figure 10 for instance shows the change in core HICP was correlated to the output gap as the law of supply-demand prevailed. That has not been working over the last 2-years of recovery and perhaps we are just waiting for a lagged response but more likely this reflects the idea that inflation in the periphery is no longer distorting the average.

Figure 11 shows that it was 2.5-3.0% periphery inflation that got the Euro area average to 2% and now the periphery is marginally below Northern European inflation. If Germany doesn't enter a bubble then the trend Northern Europe core HICP of 1.2% is a good estimate for the outlook and would explain the stubbornness of recent low measures.

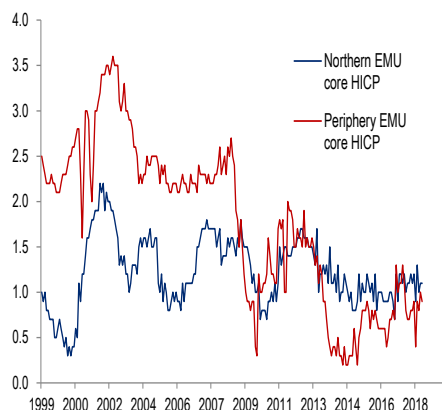
Markets nonetheless have to factor the ECB policy settings and Figure 9 which should put a risk premium on breakevens. Figure 12 shows that €5y5y breakevens at 70bp over the last core HICP print compared to 41bp on the \$ equivalent. The basic point is that the economic recovery's risk premium for inflation is already priced.

Figure 10. The output gap and the change in core HICP. The old relationship has broken down....



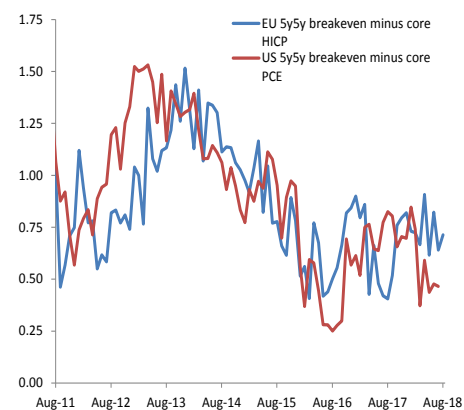
Source: Citi Research, AMECO, Bloomberg

Figure 11.probably on structural factors. We doubt 2% can be achieved now the periphery is trying to stay with a still low-inflation Germany.



Source: Citi Research, Bloomberg

Figure 12. € 5y5y breakeven (BEI) is +70bp to the last core HICP print vs. \$ 5y5y BEI against core PCE at 41bp. The € risk premium is in already.



Source: Citi Research, Bloomberg

3. German, core EGBs and global issuance

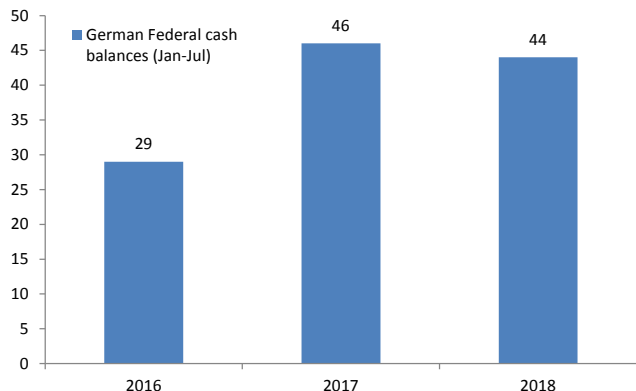
A cut in German issuance next week when the Finanzagentur publishes its Q418 outlook is likely. The Finanzagentur had already cut issuance in Q2 and Q3 by €2bn and €6.5bn respectively. Note that the German budget surplus in H1-18 totaled €48.1bn compared to a surplus in 2017 of €34bn (1.2% of GDP).

The cut in Q2 supply was particularly interesting because that was announced just 2 ½ months into the year and the budget could not be that far off forecasts. The issuance cut was instead motivated by high cash balances. In the period of Jan-July 2016 these amounted to +€29bn, and last year in the same period were +€46bn. The 2018 equivalent is +€44 bn (Figure 13) and this number does not factor in the reserves allocated for refugees who are not arriving in big numbers anymore.

Typically, the Q4 issuance cut is the highest because of confidence in the budget outcomes but this year some smoothing for the 2019 issuance is likely, because the budget plan shows a liability transfer of €10bn to the Federal level from the Laender, so the cut is more fuzzy but should be near €3-5bn.

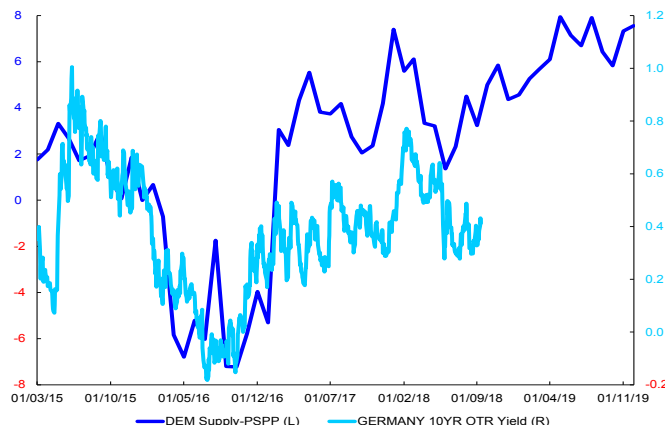
Bigger picture, the likely end of ECB net purchases at end 2018 sees supply rise in Germany like elsewhere with Figure 14 showing that 10yr equivalent supply rises by 50% on average per month in 2019 compared to 2018, but the overall 10yr equivalent number at €6.5bn is not aggressive (2018 and 2017 monthly average at €4.4bn and €2.8bn respectively).

Figure 13. German Federal cash balances – very high despite the cut in Q2 and Q3 issuance... so expect another cut in Q418.



Source: Citi Research, Finance Ministry

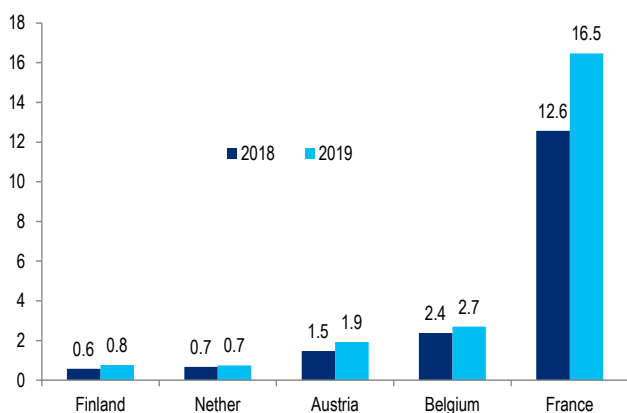
Figure 14. German average net supply in 10yr equivalents (ex-ECB). Zero net QE in 2019 mean higher net supply but the rise is neither linear or dramatic.



Source: Citi Research, ECB

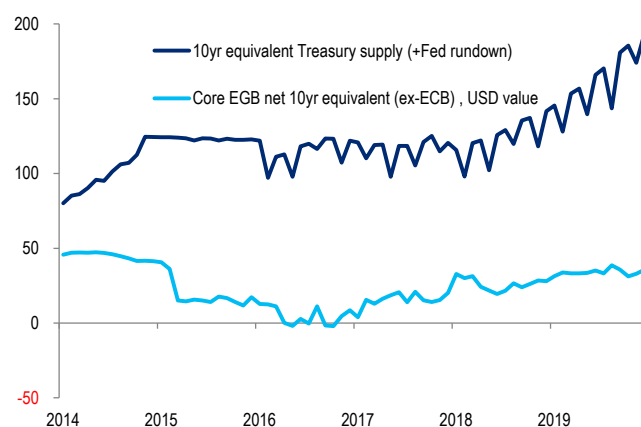
The supply picture when assessing core EGBs shows that France has the biggest absolute duration hitting the market and this accelerates in 2019. The core EGB supply picture however looks tepid compared to the acceleration in Treasury net issuance (including Fed balance sheet rundown).

Figure 15. Average monthly 10yr equivalent net supply (ex-ECB) in other core EGBs (€ bn)



Source: Citi Research

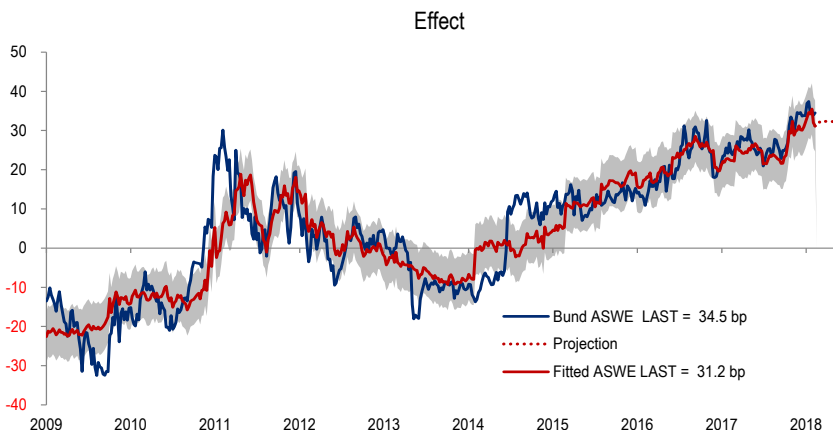
Figure 16. The bigger acceleration is in Treasury net supply.



Source: Citi Research

How is all this impacting Bunds? We continue to think in the absence of risk-off concerns actually materializing that supply is one factor pushing yields back to fair value near 0.50% and then a little higher. The Bund ASWE spread looks fair on our valuation (Figure 17) despite the cheapening in GC rates. This is driven by the blowout in the BTP spread and a stock effect in keeping Bunds rich.

Figure 17. Bund ASW valuation looks fair despite the cheapening in GC because of Italy and a stock effect.



Source: Citi Research *based on ECB holdings as % stock, 10yr equivalent QE in Bunds, BTP/Bund, Bund level,

New trade: The absence of rich levels for Bunds ASWE means our Q418 issuance view is a tactical trade. The Q2 calendar (cut of €2bn) saw a 2.5bp richening from the previous day close over the next 3-days. The same period in the Q3 announcement (cut was €6.5bp) was worth 4.5bp. The Q4 announcement should be close to the Q3 impact. Enter long Bund ASWE at 34.6bp (close 13th Sep) to target 38bp. Stop at 33.6bp The main risk to the trade is probably a major sell-off in Bunds rather than calling the issuance wrong.

4. Italy view and rich/cheap trades

Finally, our views on Italy have not shifted in that a fully priced benign budget would take 10yr BTP/Bunds to 225bp. This is our baseline - though it is tough to see why M5S would potentially hurt their own electoral chances - which in turn suggests a rise in political risk or more damage in the medium term budget plan.

Our long run view is that the absence of growth means a crisis is inevitable. That crisis is either recession led or politically motivated. Either way, Italy's coherence inside the Euro can only be restored by externally forcing through reforms (because Italian do not vote for them) via an as yet to be invented ESM+ programme which will only emerge through threats on Euro exit from both sides.

But, can kicking does work, as we have seen many times before. In this case, a right wing Salvini led government has the highest probability of some normalization in the political risk component of the crisis and we would be buyers.

What to do for trades? Figure 18 shows trades that are highly correlated to 10yr BTP/Bund where the cut-off threshold is 50% on the regression R-square on a sample from the beginning of the year.

It shows for instance, Italy BTP bulls should take long BTP 2s5s10s exposure because this is 16bp cheaper than the 10yr BTP/Bund would imply, while Italy CDS is too wide, and FTSEMIB is 703-points too low for the BTP/Bund move. Bearish proxy trades include Itraxx senior financials is 9.5bp too rich.

Figure 18. What has an R-squared of >50% to 10y BTP/Bund and is rich/cheap*.

	R-sq	Residual*	Direction
ITALY CDS USD SR 5Y D14 Corp	98%	11.0 bp	Cheap sell for BTP bulls
ITA-ESP	97%	-2.4 bp	Cheap sell for BTP bears
Ita-Ger 10s30s	96%	2 bp	BTP 10s30s too steep to Bunds
Intesa	95%	-0.13 pts	Cheap stock price versus BTP/Bund
Unicredit	94%	-0.8 pts	Cheap stock price versus BTP/Bund
Unicredit CDS	91%	-3.0 bp	CDS too rich versus BTP/Bund
Intesa CDS	91%	-1.5 bp	CDS too rich versus BTP/Bund
Italy 10s30s	91%	1.0 bp	BTP 10s30s too steep BTP/Bunds
Italy 2s5s10s	88%	16 bp	BTP fly too cheap to BTP/Bunds
ASWEBUND Curncy	87%	1.8 bp	Bund ASWE too wide to BTP/Bund
Ita-Ger 5s10s	84%	-6.1bp	BTP 5s10s too flat vs Bunds for BTP/Bund
Italy 5s10s	84%	-8.2bp	BTP 5s10s too flat for BTP/Bund
UBAISPO Comdty	82%	3.1 bp	Buxl ASWE too wide to BTP/Bund
SX7E	82%	-6 pts	Stocks low v BTP/Bund
ASWEBOBL Curncy	80%	-1.4 bp	OBL ASWE too low to BTP/Bund
Eur swap 2s5s10s	78%	1.1 bp	Fly too high for BTP/Bund
Germany 2s5s	74%	-2 bp	German '2s5s too flat for BTP/Bund
ltrx senior	72%	-9.5 bp	Too tight versus BTP/Bund
FTSEMIB Index	72%	-703 pts	Stock too low versus BTP/Bund
10yr Bund	70%	3 bp	10yr Bund cheap versus BTP/Bund
Eur swap 2s5s	68%	1.2 bp	Eur '2s5s too steep for BTP/Bund
Ita-Ger 2s5s	64%	10bp	Italy 2s5s too steep vs Germany, for BTP/Bund
ESP-FRA	58%	-3bp	Spain rich v France, given BTP/Bund
EURCHF	56%	-2 big fig	CHF rich versus BTP/Bund
Eur swap 10s30s	53%	1.0 bp	Eur 10s30s too steep given BTP/Bund
10yr Bund/Tsy	52%	3.7bp	Tsy cheap v Bund, given BTP/Bund

Source: Citi Research

*BTP/Bund is the independent variable. Sample is year to date.

NB: Futures trading involves substantial risk of loss.

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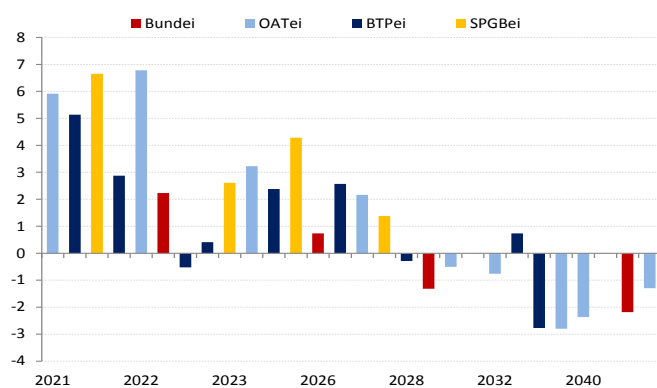
€inflation – fading richness of front-end

Front-end euro break-evens have performed well, helped by the rally in oil prices. This rally seems to be losing steam now. We recommend OATei21-20 break-even steepener following a sharp flattening recently, surprisingly when OATei21 might be reaching the end of its re-opening cycle. Separately, OATei21 also looks cheap on the OATei20-21-22 real yield fly.

Outperformance of front-end break-evens

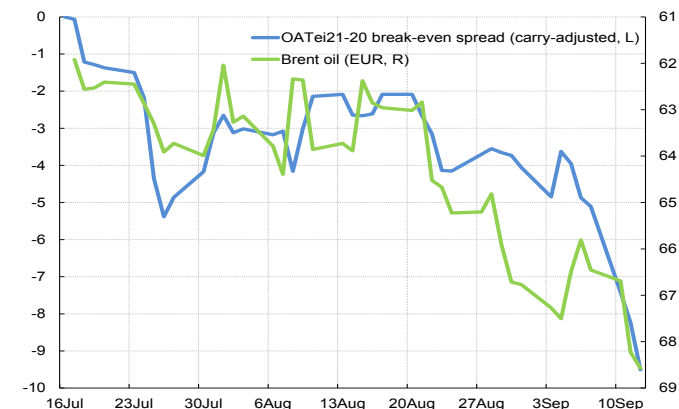
Front-end euro break-evens have outperformed on the over the last month (Figure 19). This has perhaps been driven by the rally in oil prices (+12% since July, Figure 20). However, Brent has now started to soften after reaching the \$80 level intraday yesterday. This is a level it has already failed to breach twice this year. This could be related to the Reuters story that Saudi Arabia is aiming to keep oil within \$70-80 range until the US mid-terms. Any retracement in oil from the top of the range could weigh on the rich front-end of the euro break-even curve.

Figure 19. 1-month change in euro break-evens



Source: Citi Research

Figure 20. OATei21-20 break-even change (carry-adjusted) vs Brent oil

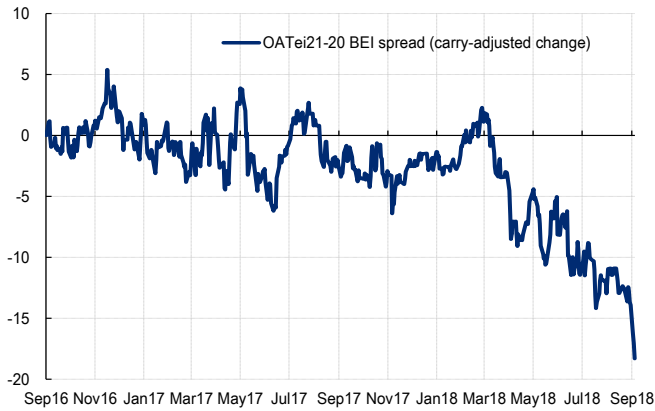


Source: Citi Research

OATei21-20 break-even spread looks too flat

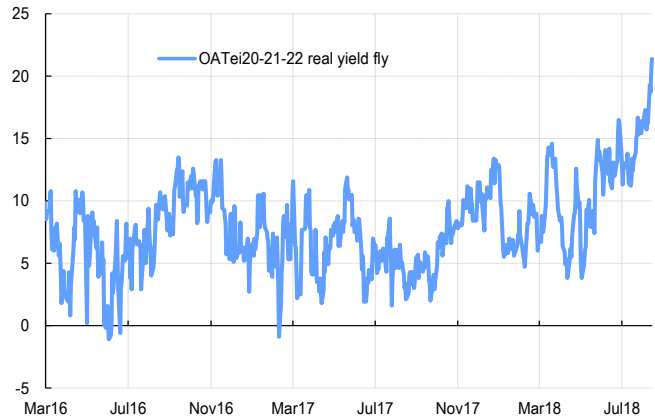
Our favourite expression of fading this richness is to buy OATei21 break-evens vs ei20 (Figure 21). The curve has flattened by 20bp over the last 6 months on a carry-adjusted basis. The cheapness of OATei21 can also be seen on the real yield curve. OATei21 real yield has cheapened by 10bp vs OATei20 and 4bp vs OATei22 over the last two months, taking the real yield fly to historically high levels (Figure 22).

Figure 21. Carry-adjusted change in the OATei21-20 break-even curve



Source: Citi Research

Figure 22. OATei20-21-22 real yield fly



Source: Citi Research

OATei21 reaching the end of supply cycle?

This cheapness looks surprising given OATei21 might be reaching the end of its supply cycle. The bond has just 2.5yrs left in maturity. The AFT has not re-opened an inflation-linked bond this short since at least 2011. The frequency of re-openings already looks to have declined - it has only been re-opened once so far in 2018 vs three times in each of 2016 and 2017.

New trade: Buy OATei21 break-evens vs OATei20 at -19bp. Target PnL 10bp. Stop PnL -5bp. A risk to the trade is a renewed rally in oil prices.

Rich GBP midcurve implied vol vs. USD

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The premium of GBP midcurve implied vol over USD midcurve looks excessive on the 4y1y forward swap tenor for expiries above one year.

GBP/USD rates implied vol spreads and the business cycle

In basic option modelling frameworks the price of the underlying is log-normally distributed. Simple algebraic manipulation then shows that implied volatility is an increasing function of the level of the underlying. This is intuitively sensible.

Indeed, without loss of generalization, at or *in the neighbourhood* of the lower bound (where, incidentally, the corresponding accommodative monetary policy acts as an absorbing barrier for usually an extended period of time), rates can essentially only increase whereas in a high(er) yield environment they are allowed to meaningfully wiggle in both directions.

As shown in Figure 23, unsurprisingly USD vanilla swaption implied vol currently commands a premium over GBP vanilla swaption implied volatility across the surface.

Figure 23. Spread between USD and GBP vanilla swaption implied volatility

	1y	2y	3y	4y	5y	6y	7y	8y	9y	10y	12y	15y	20y	25y	30y
1m	8	11	12	10	8	8	6	6	5	5	5	5	4	5	5
2m	9	12	13	11	10	8	7	7	6	6	6	6	5	5	6
3m	9	13	12	10	8	7	6	5	5	5	5	5	4	4	5
6m	10	13	12	10	7	6	5	5	4	4	4	4	4	4	4
9m	12	14	12	9	7	6	5	4	4	4	4	3	3	3	3
1y	14	15	12	10	7	6	6	5	4	4	4	3	4	3	4
2y	17	16	12	9	7	6	5	5	5	5	4	3	3	4	4

Source: Citi Research. As of 16:00 BST 12 Sep

Relative to USD vanilla implied vol, GBP vanilla implied vol is cheaper on the LHS of the volatility surface: this region on the surface is in fact the most sensitive to the monetary policy factor. In other words, still apply accommodative conventional policy by the BoE is reflected in the wedge between USD and GBP implied volatility in the top-left corner.

Meanwhile, farther out the curve, on the RHS of the vanilla vol surface, valuation of GBP vol is higher relative to USD. Having said that, USD vol premia over GBP are positive across the vanilla swaption volatility surface.

Rich GBP midcurve implied vol points vs. USD

Figure 24. Spread between USD and GBP midcurve swaption implied volatility

	1y1y	1y2y	1y3y	1y4y	2y1y	2y2y	2y3y	2y5y	3y1y	3y2y	4y1y	5y2y	5y5y	10y10y	20y10y
1m	15	17	18	16	17	18	15	14	17	17	15	16	13	10	10
3m	11	12	11	11	10	11	11	10	9	10	9	11	9	8	8
6m	7	7	8	8	6	8	10	8	8	9	8	9	7	6	7
1y	7	8	8	6	7	9	7	6	8	6	4	9	8	5	6
15m	6	6	5	4	5	5	6	6	4	2	-1	9	8	6	7
18m	4	3	2	3	2	2	6	6	0	-2	-6	9	9	6	8
2y	5	4	3	3	1	3	6	6	-2	-3	-6	9	9	7	9

Source: Citi Research. As of 16:00 BST 12 Sep

In sharp contrast the USD midcurve implied vol premium over GBP vol on the 4y1y forward swap tenor is currently negative for option expiries above 1 year (Figure 24).

In particular GBP 18m → 4y1y midcurve swaption implied vol is trading some 6 norms above USD. GBP midcurve vol looks too rich here, in our view. As a first point, the USD underlying is currently delivering more than the corresponding GBP forward swap and has done so for most of the time this year (Figure 25). This is in line with the lag in the business cycle (and corresponding levels of rates) argument outlined above.

Figure 25. Spread between USD 4y1y and GBP 4y1y realized volatility (bp)



Source: Citi Research. As of 16:00 BST 12 Sep

In addition, our economists expect the next BoE hike to be delivered after the Brexit date, with August 2019 currently their base case if all goes well with the process.

Indeed, while we remain optimistic that the UK and the EU will avoid a no-deal-cliff-edge in March, the BoE will be inclined to err on the side of caution during the initial phase of the ensuing transition period.

In turn USD negative midcurve vol premia over GBP ought to revert to positive valuation, like on the vanilla surface.

Conclusion

While USD vanilla swaption vol premia over GBP are positive across the vanilla surface, we currently observe some that are distinctly negative in midcurve space.

Notably, negative USD premia over GBP midcurve look unsustainable on the 4y1y forward swap tenor for expiries above one year.

Euro SSA Strategy

Supra RV versus semi-core

Michael Spies

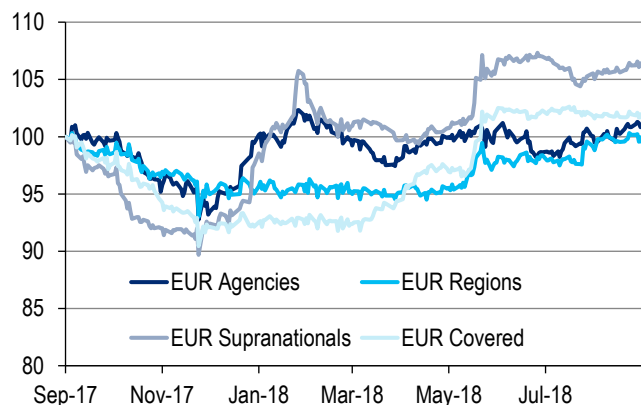
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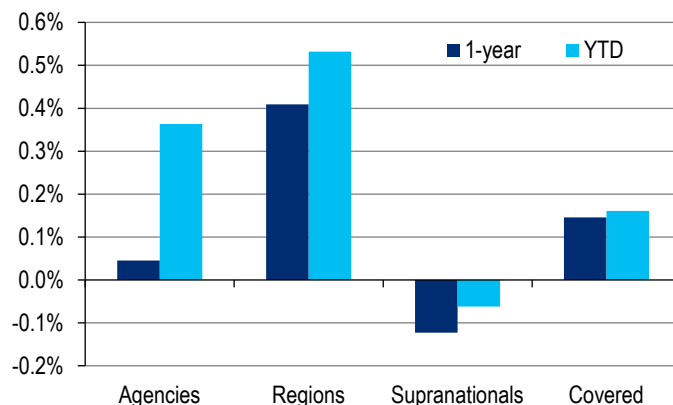
Decoupling of supras from core sovereigns...: The European supra segment is testing well-established spread correlations at current stage. We've already highlighted the relative cheapness versus core sovereign bonds such as OAT in the past (*European Rates Strategy View*). However, it is also remarkable to see that the European supranational segment similarly decoupled from European agency and (to a lesser extent) regional markets. In fact, while the supranational segment has been the slightly more volatile segment (on an index basis) in the past, they generally reverted to same spread levels, like in January or April this year.

Figure 26. ASW spread development of main iBoxx SSA and covered bond indices, Sep17=100, bp



Source: Markit, Citi Research

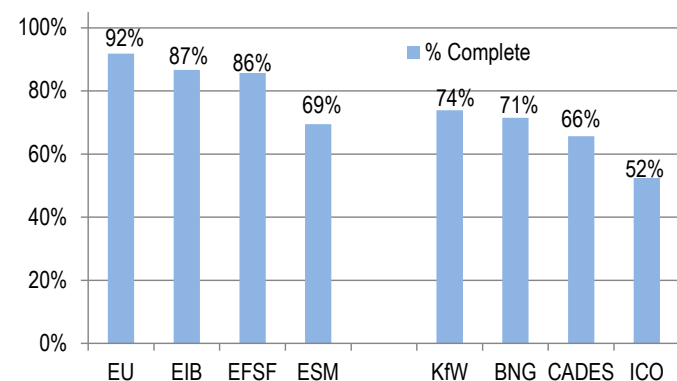
Figure 27. 1-year and year-to-date total returns of main iBoxx SSA and covered bond indices, %



Source: Markit, Citi Research

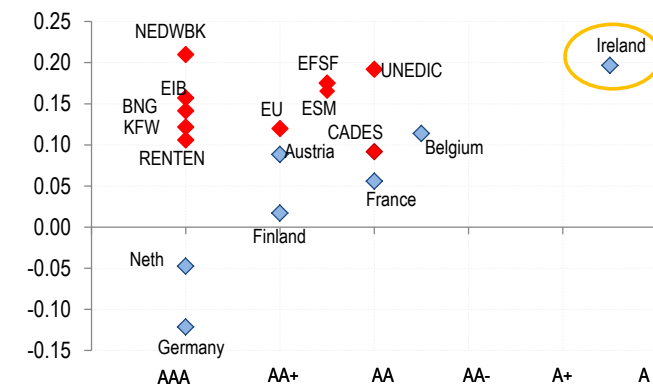
... and agencies: However, during May, supranational ASW spreads saw a much fiercer widening than agency ASW spreads. Since then, there hasn't been a reversal/corrective move (Figure 26). This may also be the reason why the supra segment is the only one within the SSA/covered bond universe which recorded negative returns on a 1-year and year-to-date basis (Figure 27). One could invoke the already high funding completion rates of supras compared to the main European agencies (Figure 28). In other words, the already high levels of supra supply still has to be digested. This may be one driver for the decoupling.

Figure 28. Main European SSA funding completion rates, %



Source: Citi Research

Figure 29. 6-yr average yield versus rating, %

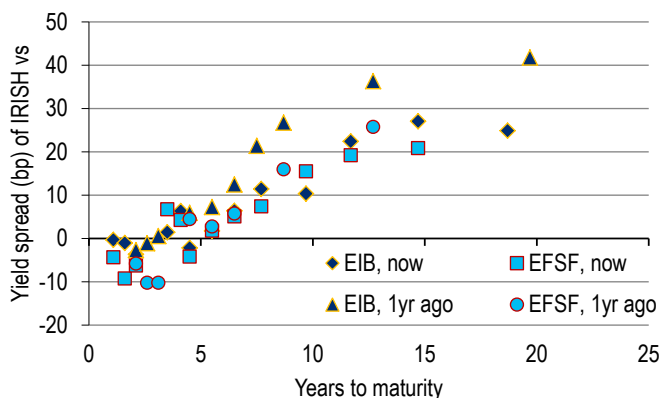


Source: Bloomberg, Citi Research

Prepared for Hansi Huang

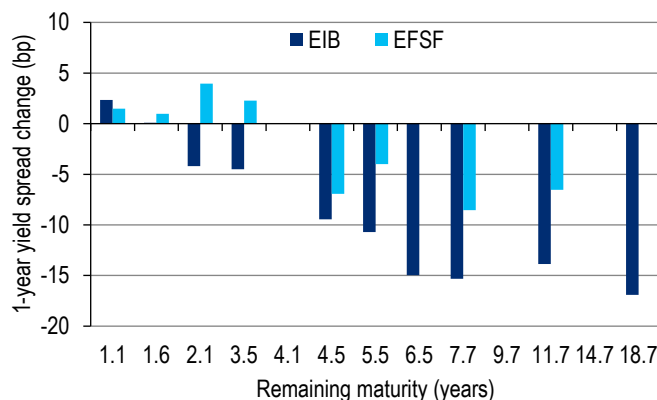
Spreads to semi-core EGBs are also tight: Another form of supras decoupling can be seen when comparing with semi-core EGB markets such as Ireland. Being rated several notches below the European supras, yields have reached very similar levels, particularly in the belly of the curve (Figure 29). While there is still a positive yield spread differential of 20-30bp in tenors beyond ten years, Irish sovereign bonds are trading at richer levels than EIB or EFSF in the front-end of the curve (Figure 30). This comes after a strong rally of Irish sovereign bonds over the last year, particularly versus EIB (Figure 31). This comes at a relatively high funding activity (Ireland had a completion rate of 78% at the end of last week).

Figure 30. Yield spread curves of Ireland versus European supras, bp



Source: Bloomberg, Citi Research; as of 12/09/18 4pm CET

Figure 31. 1yr change in yield spreads between Ireland and European supras, bp



Source: Citi Research; maturity matched bond pairs

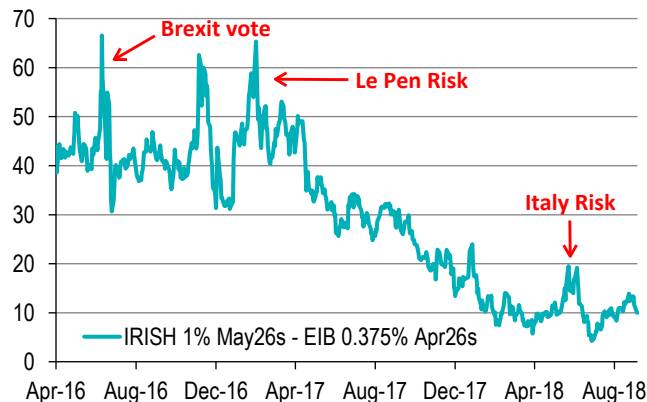
Why we would prefer EIB to IRISH: There are very few negative idiosyncratic factors on Ireland to list which would speak against tight spreads to higher rated EGB and SSA markets going forward. We would however flag two main external factors which may have a larger impact on Irish sovereign bonds than on EIB in the weeks ahead: **firstly**, Irish sovereign bonds react more sensitive to political risks in the euro-area which is important if Italy risks re-emerge over budget discussions in the coming weeks (*European Rates Weekly*). **Secondly**, Irish assets may be more negatively impacted in the scenario of a no-deal Brexit than most other EGB and SSA assets. To be clear, there are also some uncertainties around EIB should the EU not find a compromise with the UK on future relations. However, as seen in June 2016, EIB bonds may again be the safer place to go (Figure 33).

Figure 32. Yield development of EIB and Ireland in the 5yr sector, %



Source: Bloomberg, Citi Research; as of 12/09/18 4pm CET

Figure 33. Yield spread development EIB vs Ireland in the 5yr sector, bp



Source: Bloomberg, Citi Research; as of 12/09/18 4pm CET

Prepared for Hansi Huang

Covered Bond Strategy

Pfandbriefe: Merger activity ongoing

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Next merger in the mortgage banking system: This year, the German pfandbrief market has already seen a merger leading to the biggest pfandbrief issuer in the segment. With DZHYP, a new institution formed from the mortgage banks of the German cooperative banks, WLBANK and DGHYP, will become an active pfandbrief issuer in the future (for more details, please see [European SSA & Covered Bond Monthly](#)). This week, another merger was agreed upon which won't lead to a similarly big pfandbrief issuer but still is an interesting development. Aareal Bank has reached an agreement on the acquisition of all shares in Düsseldorf Hypothekenbank AG ([Aareal Acquires Dusseldorfer Hypo](#)).

Timing and effects for AARB: The sale and purchase agreement has already been signed. This is now subject to approval by corporate bodies. The closing of the transaction is subject to regulatory approvals and is currently expected to take place in 2018. The preliminary purchase price is approx. €162mn. For AARB, the transaction would lead to a positive one-off effect from initial consolidation (negative goodwill) in the amount of approximately €52mn. Operating profit for the 2019 financial year would presumably be burdened by this transaction in a very low double-digit million amount.

Figure 34. Cover pool key figures

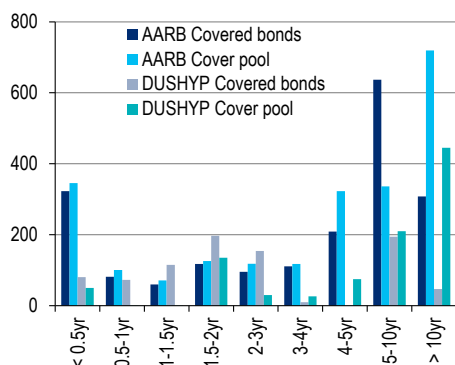
	AARB	DUSHYP	New
Mortgage pfandbriefe	9122.1	108	9230.1
Mortgage pool	11858.2	317.3	12175.5
OC	2736.1	209.3	2945.4
OC Ratio (%)	30.0%	193.8%	31.9%
	AARB	DUSHYP	New
Public sector pfandbriefe	1941.6	870.5	2812.1
Public sector pool	2257.7	971.7	3229.4
OC	316.1	101.2	417.3
OC Ratio (%)	16.3%	11.6%	14.8%

Source: VDP, Citi Research

What is Düsseldorf Hypothekenbank AG? DUSHYP is an unrated German pfandbrief bank specialised on commercial mortgage business – hence a perfect fit for AARB with a very similar focus. The bank was also active in public sector lending in the past. DUSHYP has been an active benchmark pfandbrief issuer several years ago, having started at the end of the 1990s with its inaugural transaction. The last benchmark pfandbrief matured in 2013. In 2008, on the height of the financial crisis, the bank was rescued by the Deposit Protection Fund of the Association of German Banks and has been in wind-down since then. At the end of last year, the bank's balance sheet totalled €3.989bn (from €24.5bn in 2008). Nonetheless, DUSHYP has still mortgage and public sector pfandbrief programs in place – albeit small in size.

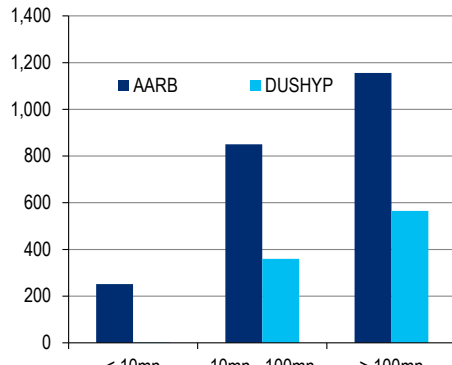
Biggest impact on public sector pfandbrief program: With its sale to AARB, we expect the pfandbrief programs to eventually merge as well. As shown in Figure 34, a strong impact would only be seen in the public sector program of AARB (which doesn't back any outstanding benchmark bond). The following graphs show how the public sector pool would be impacted, based on 1H18 figures (for AARB mortgage pool, see [2018 Covered Bond Handbook](#)).

Figure 35. Maturity structure of both public sector pools, €mn



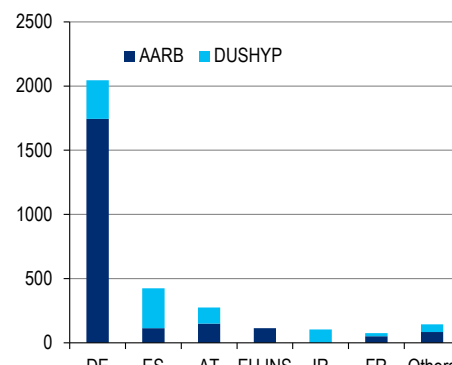
Source: VDP, Citi Research

Figure 36. Public sector cover pool structures by loan size, €mn



Source: VDP, Citi Research

Figure 37. Public sector cover pool structures by geography, €mn

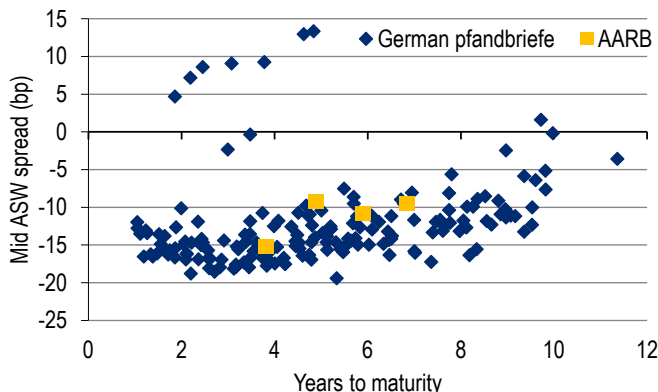


Source: VDP, Citi Research

Prepared for Hansi Huang

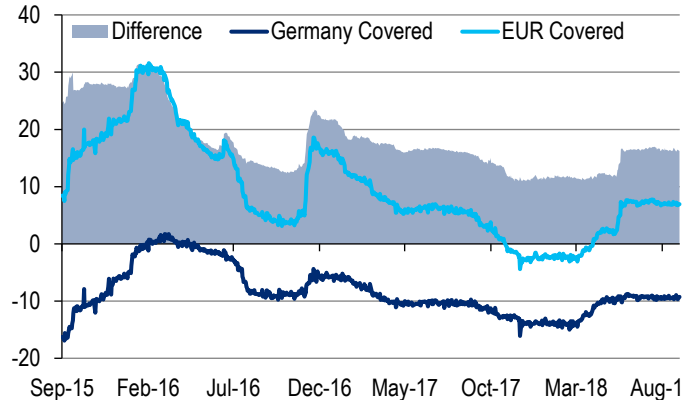
Surprising primary market activity recently: We expect the merger to have no impact for AARB pfandbriefe. In fact, other factors may dominate valuations going forward. Two idiosyncratic themes which may explain AARB spreads to German peers is a) on a long-term basis, the high share of commercial assets in the mortgage cover pool and b) on a short-term basis, the somewhat surprising high primary market activity with two transactions within three weeks.

Figure 38. AARB ASW spreads in context of the German pfandbrief market, bbp



Source: Bloomberg, Citi Research; as of 11/09/18 11am CET

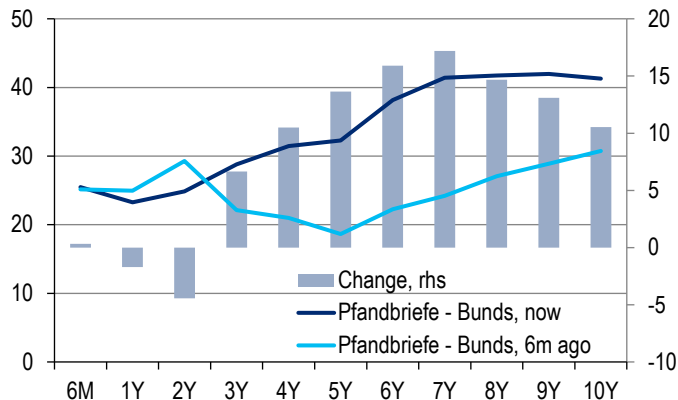
Figure 39. ASW spread development of German pfandbriefe and the broader euro covered bond market, bp



Source: Markit, Citi Research

Wider spread outlook: Looking beyond AARB, we **recommend overweighting German pfandbriefe** going into year-end despite the rich levels versus swaps. This is mainly due to increased uncertainties on Italian politics during October, Brexit risks in the final stage of discussions and the beginning of ECB QE taper during Q4. We therefore believe that the safe-haven covered bond segment will be least impacted. As seen during the re-pricing in Q2 (Figure 39), pfandbriefe have been more resilient to risks than the broader covered bond market.

Figure 40. Yield spread development of pfandbriefe versus Bunds now and six months ago by tenor, bp



Source: Bloomberg, Citi Research

Figure 41. Yield spread development of pfandbriefe versus Bunds, 7yr sector, bp



Source: Citi Research

RV versus sovereigns: In contrast to the richness versus swaps, pfandbriefe have underperformed Bunds over the last six months (Figure 40). That was particularly in the 7-year sector where spreads nearly reached the widest levels over the last two years (Figure 41). The richness versus swaps but cheapness versus sovereigns is a broader theme for covered bond (and SSA) markets. Note that we are **already long Austrian covered bonds versus RAGB and Belgian covered bonds versus BGB** and like similar trades in the SSA market (**such as ESM versus France**).

Gilt auction preview – Oct28s next Thursday

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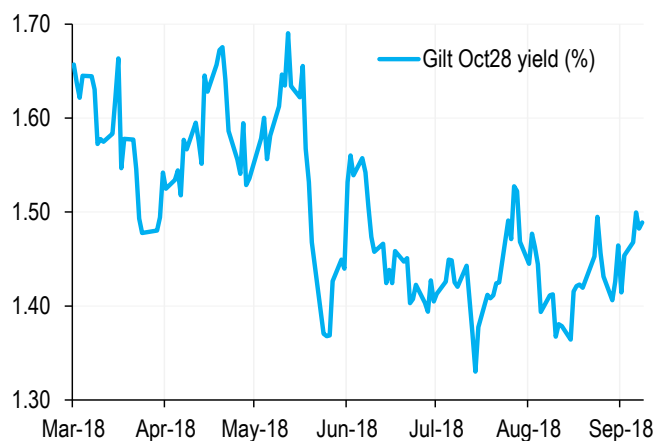
Auction details: The UK DMO will issue £2.75bn of UKT 1.625% gilt Oct28 next Thursday. The bond will next be re-opened on 6th November.

Range-bound 10yr gilt yields: 10yr yields have remained in the 1.35-1.55% range over the past three months (Figure 42), perhaps clouded by the ongoing Brexit uncertainty. “No deal” or ‘Deal’ could be the difference between yields heading to 1% or 1.7% by year-end. A ‘No deal’ is likely to inspire an initial reaction of -50bp, whereas a fudged deal buys time and is probably worth +25bps (*Brexit impacts*).

10yr rich on 7s10s15s fly

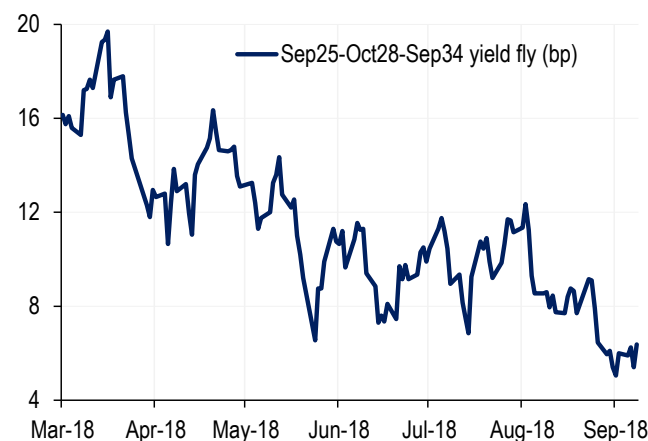
- Oct28s has consistently richened on the Sep25-Oct28-Sep34 yield fly over the past 6 months (Figure 43). This is a result of an outperformance of the bond vs both Sep25s and Sep34s (Figure 44). We see limited relative value here.

Figure 42. 10yr gilt yields range bound



Source: Citi Research. As at 11:00 London time 13th September 2018.

Figure 43. 10yr gilts rich on the 7s10s15s curve

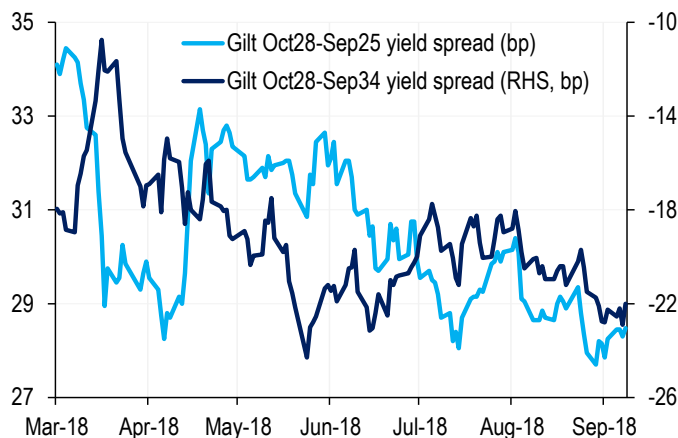


Source: Citi Research. As at 11:00 London time 13th September 2018.

Cross-market – cheap vs Bunds

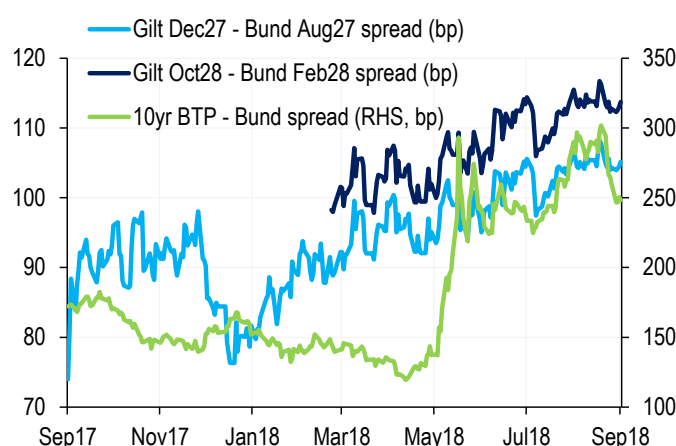
- 10yr gilts have cheapened vs Bunds since mid-May and look attractive at current levels (Figure 45). However, we note that the 10yr gilt-Bund spread seems to have temporarily correlated with 10yr BTP-Bund spreads over the recent volatility.

Figure 44. 10yr has outperformed vs both 7yr and 15yr



Source: Citi Research. As at 11:00 London time 13th September 2018.

Figure 45. 10yr gilt-Bund spread



Source: Citi Research. As at 11:00 London time 13th September 2018.

Prepared for Hansi Huang

Tradesheet

Recommended trades

Figure 46. Open trades

Trade	Entry Date	Entry level	Live ¹	MTM Level ²	Target	Stop	Carry 3m (bp)	PnL (bp)	Reasonable basis and risks
Long Bund ASWE	13-Sep-18	34.6	34.6	34.6	38.0	33.6		0	Total Q4 Bund supply to be reduced, in our view. Risk: A major sell-off in Bunds rather than calling the issuance wrong.
Buy OATei21 BEI vs OATei20 (Target/stop in PnL terms)	13-Sep-18	-19	-19	-19	10	-5		0	Oil rally seems to be losing steam. Risk: renewed rally in oil prices.
Buy € 25y10y 3s6s swap basis	31-Aug-18	0	0	0	5	-1		0	Regulatory transition to BMR risk-free rate to exert a widening pressure. Risk: structurally limited given current levels.
Buy EIB Jul20 vs Bono Jul20	2-Aug-18	15	20	20	30	5	-4	3	Hedge against front-end periphery widening and a step up in quality. Risk: Unexpected front-end EIB supply in August.
Buy ESM Mar27 vs OAT May27	26-Jul-18	14	10	10	0	21		4	Relative supply dynamics and the slight step up in credit quality. Risk: Unexpected lumpy ESM supply over August.
Buy DSL Jan22s vs DSL Jan33	26-Jul-18	110	114	114	124	102		4	Long-end DSL supply likely to weigh on the curve. Risk: Ongoing duration bid further cements curve flatness.
Buy cap spread in 6m 5s2s GBP (Target/stop in PnL terms)	26-Jul-18	0	0	0	10	-2.1		0	Bias towards steepeners, with the curve already flat. Risk: global slowdown which limits the maximum loss to the premium.
Short Jun19 Euribor (target/stop in price terms)	26-Jul-18	100.27	100.27	100.27	100.18	100.30		-1	Low ECB risk premia during the summer. Risk: expectations of further rate cuts.
€ 1y5y ATMF/ATMF+24 payer swaption spread	19-Jul-18	0	4	4	50	-30		4	Mild terminal bearish trade vs. both market implied and our view on policy. Risk: sell off at expiry which takes 5y swap above BE rate at 1.05%.
Sell OAT May48 vs matched-maturity swap	19-Jul-18	6	10	10	17	0		5	Expectations of a twist to re-investment could be over-egged. Risk: OATs attract further demand as they gradually replace Bunds
Buy OLO Jun34 vs RAGB May34	12-Jul-18	17	17	17	8	23	0.7	1	Lack of material fundamental deterioration in Belgian sovereign credit quality. Risk: unexpected lumpy supply by Belgium in August / September.
Buy KfW Feb27 vs Bund Feb27	12-Jul-18	33	31	31	20	40	1.3	3	Favorable supply dynamics and strong fundamentals. Risk: heavy euro KfW supply in July/August.
Sell € 6m2y Payer to finance a 1x1 Payer spread in 6m10y	5-Jul-18	0	4	4	20	-10		4	ECB Odyssean guidance and dovish optionality. Risk: a material sell-off in 2yr rates.
Buy IL42 vs IL27	2-Jul-18	17	17	17	2	25	-3	-2	Prospect of a rate hike from the MPC. Risk: MPC don't hike in August prompting further steepening.
Buy € 1y5y vs € 1y30y ATMF swaption straddle (target/stop in millions)	21-Jun-18	0	-20	-20	100	-35		-20	The strategy is a hedge against Italian headline risk. Risk: outperformance of 30y vol.
Buy RFGB Sep27 vs Bund Aug27 and IRISH May28	21-Jun-18	-10	-17	-17	-20	-5	0.2	7	Historically attractive entry level with little correlation to Italy risk. Risk: Further reduction in German supply
Buy OATei30 break-evens vs SPGBei30	7-Jun-18	5	5	5	15	0		0	Index/cash flow supports for France. Risk: any re-opening of OATei30.
Sell ERM9 (target/stop in price terms)	24-May-18	100.21	100.27	100.27	99.50	100.32		-6	The tail risk of a new sovereign debt crisis is real. Risk: roll-up of the trade.
Sell € 1x2 Receiver on 3m30y (ATMF-0.095%)	24-May-18	0	-1	-1	25	-10		-1	View on global duration getting more constructive. Risk: a small move below the ATMF to realize a maximum loss of 9.5bp.
Buy € 1y2y ATMF swaption straddle (target/stop in PnL terms)	3-May-18	42	39	39	30	-22		3	1yr rolldown return on the straddle is close to the highs at 58%. Risk: a collapse of implied volatility.
Buy IL46 BEI vs Bundeil46	26-Apr-18	170	169	169	190	160		-4	30yr UK breaks look cheap. 30yr Bundeil may face supply pressure. Risk: MPC hike in May after all.
€ 2y fwd flattener versus \$ steepener in 2y fwd 1s3s	19-Apr-18	46	46	46	15	58	0.1	0	\$ inversion is here while the steepest €2y 1s3s level is just 4bp away. Risk: ECB accelerating its hike guidance
Buy RFGB Apr23 vs IRISH Mar23	15-Feb-18	-3	-11	-11	-17	6	-2	4	Move up in quality. Risk: unexpected 5yr Finnish issuance.
EUR 1x2 2y2y zero-cost payer spread*	18-Jan-18	0	4	4	70	-15		4	Medium term insurance vs. shift in forward guidance by ECB. Risk: Sell-off of 2y rate above 1.40% at expiry.
Rec 3yr fwd € 5s10s30s	18-Jan-18	20	22	19	5	30	1	1	Fwd cheapening is unlikely to be realized on directional the sell-off. Risk: commitment by ECB not to re-calibrate policy as growth ensues.
Sell Bundeil26 break-even vs OATei27	11-Jan-18	4	5	5	14	-1		0	Supply pressure returns and QE support potentially dwindles for Bundeil. Risk: Germany issuing a new 5yr linker.
Sell Bundeil 23-26 forward real yield (%)	18-Dec-17	-0.83	-0.79	-0.79	0.00	-1.25		4	Higher real rates logical consequence of reduction in policy accommodation. Risk: global risk-off flattening yield curves.

Source: Citi Research, Bloomberg. As at 15:30 London time 13th September 2018.

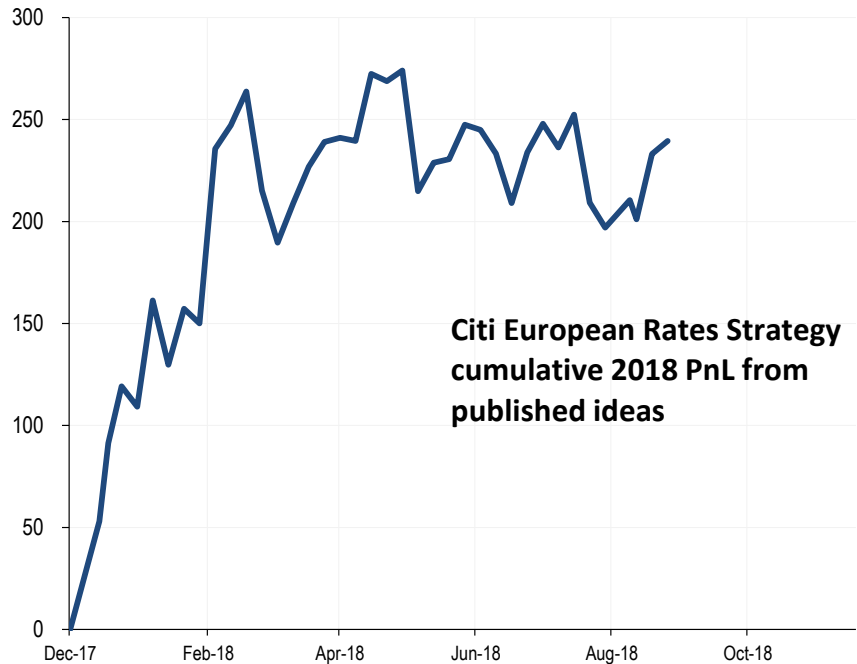
NB: Futures trading involves substantial risk of loss.

Figure 47. Open trades (continued)

Trade	Entry Date	Entry level	Live ¹	MTM Level ²	Target	Stop	Carry 3m (bp)	PnL (bp)	Reasonable basis and risks
Euribor/OIS basis flattener in 4y1y vs 2y1y	18-Dec-17	4	4	4	0	6	0.2	0	Market prices the new reform far too late. Risk: Eonia reform announced for 2021 and beyond.
Buy 10y10y 0% rec swaption vs sell 10y10y ATMf rec swaption	18-Dec-17	68	59	59	30	73		9	Ratio of the 0% strike to ATMf strike has not moved aggressively. Risk: no re-regulation.
Buy KfW Jun24 vs OLO Jun24	18-Dec-17	7	2	2	-10	16	-0.8	3	Move up in quality at a positive spread. Risk: more than expected supply.
Sell Bundel26 break-evens vs BTPel28	18-Dec-17	5	8	8	0	-3		0	Bullish on BTPei BEs on anticipation of higher nominal yields. Risk: risk aversion around the Italian elections weighing on break-evens.
Buy 10yr French inflation swaps vs EUR	18-Dec-17	2.5	-1	-1	20	-6		-3	10yr French inflation swaps have lagged in the rally seen in European inflation. Risk: downward revisions to French inflation forecasts.
Buy € 1y 10s30s single look ATMf spread cap	18-Dec-17	7	7	7	15	-3		0	Downside to cheap spread option premia. Risk: appearance of risk-off market sentiments.
Buy GBP 1x2 2y30y 1.42/0.99 swaption receiver spread	18-Dec-17	0	100	100	500	-25		100	UK rates sensitive to Brexit negotiations. Risk: emergence of risk-off sentiment takes 30y swap below 66bp at expiry.
<small>*Trade level if initiated today. ²The level of our trade marked to market today. * Hit target of 45bps and we are extending the target to 70bps. This table does not include trade ideas subject to a restriction.</small>									
Book PnL								127	
Closed Trades PnL								112	
Total PnL								239	
Book 3m carry							0		

Source: Citi Research, Bloomberg. As at 15:30 London time 13th September 2018.

Figure 48. Cumulative PnL of trades recommended since 2018 Outlook



Source: Citi Research, Bloomberg. P&L on trade ideas includes carry and roll costs but not trading costs. Results should not, and cannot, be viewed as an indicator of future performance.

Recommended and closed trades over the past 12 months

Figure 49. Closed trades

Trade	Close Date	Entry level	Live	Closing MTM Level	Target	Stop	Carry 3m (bp)	PnL (bp)	Reasonable basis and risks
Rec 6m 1yr Fed Funds versus paying Eonia	Hit stop 12-Sep-18	294	300	300	280	300	5	-6	Expectations of a Fed pause likely to rise. Risk: FOMC forcing markets to re-price more fully for Dec/Mar hikes.
Euro HICPXT 2s10s steepener (Target/stop in PnL terms)	Hit stop 6-Sep-18	9	18	1	15	-8		-8	Realised inflation increase in the price, oil likely to weaken. Risk: any upside surprises in euro realized inflation.
Buy gilt Dec27 vs Bund Feb28	Hit stop 30-Aug-18	90	102	102	65	102	0	-12	Diverging growth should ultimately lead to tighter 10yr gilt-Bund spread. Risk: strong data cements a May rate hike from the MPC
Receive December 2018 STINA vs EONIA	Hit target 17-Aug-18	3	13	13	14	-3		10	Attractive risk-reward given weakness in data and Riksbank caution. Risk: upside surprise in Swedish CPIF turning the Riksbank hawkish.
Buy EUR 2y1y ATMf receiver	Take profit 26-July-18	20	23	23	50	0		3	Carry trade with optionality Risk: Higher nominal growth
Receive SEK 2y1y	Take profit 26-July-18	1	0	0	0	1		7	ECB policy continuity with better carry in SEK. Risk: upside surprise in euro area growth.
Rec CHF 5y5y versus EUR 5y5y	Hit stop 17-June-18	57	53	53	75	53	-1	-4	Lag in the CHF rally and the regression beta is close to 1. Risk: Flight to quality that does not take CHF rates lower.
Buy € 1m5y/1m5y25y conditional bear flattener	Trade expired 11-Jun-18	0	0	0	25	-10		0	Hedge hawkish surprises by the ECB. Risk: development of a bear steepening pressure on the 5s30s curve .
6m USD5Y - EUR5Y 1.70 floor (paid out in USD)	Trade expired 14-Jun-18	5	0	0	105	0		-5	Rate divergence between USD/EUR to partially reverse in 2018. Risk: Only the premium.
Buy EFSF May26 vs OAT May26	Hit stop 30-May-18	8	14	14	-10	14	0	-6	Valuations and positive NCR of OATS in 2018. Risk: liquidity rally and unexpected EFSF front-loading of 2018 supply.
OBL/Buxl ASWE steepener	Hit stop 30-May-18	7	3	3	18	3	2	-4	OBL is much less sensitive to supply than Buxl. Risk: flight to quality shift.
Buy OATei40 break-evens vs BTPei41	Hit target 29-May-18	15	24	24	24	10		9	Cheap valuations amid changing supports. Risk: uncertainty in the timing of the new supply.
Sell BTPei26 break-evens vs OATei24	Hit target 29-May-18	-3	-13	-13	-13	2		10	Fading historical richness of BTPei. Risk: any price inelasticity in domestic demand for BTPei.
Buy BTP Jun26 vs BTP Sep22	Hit target 29-May-18	97	85	85	85	103		12	Ongoing flattening supported by PSPP reinvestments. Risk: a spike in political uncertainty around the government formation.
GBP 1x2 2y20y ATMf/ATMf receiver swaption spread	Hit stop 30-May-18	0	-35	-35	100	-35		-35	Opportunity to hedge against Brexit, given current GBP vol and skew pricing. Risk: a sustained rally that takes the GBP 20y swap.
Sell Bundei26 ASW	Hit stop 24-May-18	-46	-51	-51	-37	-51		-5	Rich levels, likely supply in June. Risk: any wider risk-off move driving flight to quality.
Buy Bonos Apr27 vs BTP Jun 27	Hit target 16-May-18	-42	-71	-71	-71	-27	0	29	Improvements in Spanish fundamentals. Risk: the politics of Catalonia.
Receive € 5y5y swap (in %) **	Hit stop 15-May-18	2	2	2	1	2	4	21	Attractive valuation. Risk: a breakdown in \$ rates leading to a global repricing.
Buy Bundei20 BEI vs SPGBei27 (target/stop in PnL terms)	Hit target 17-May-18	24	37	37	15	-8		15	Euro break-even carry turns positive for the next 5 months. Risk: a new 5yr Bundei from Germany.
Buy May MPC Sonia	Take profit 1-May-2018	1	1	1	0	1		16	May hike would signal too fast a hiking cycle. Risk: global growth momentum produces a strong Q1 in the UK too.
OATei22-21 break-even steepener (Target/stop in PnL terms)	Unsupportive carry profile 26 Apr 2018	-16	-22	-22	15	-8		2	Attractive entry level, positive carry and supportive supply profile. Risk: further rally in oil prices.
Buy PGB Feb45 vs IRISH Feb45	Hit target 28-Mar-18	147	100	100	100	170	1	48	Massive outperformance of PGBs to continue in 2018. Risk: new political risk in Portugal
Sell IL19 BEI spread (Target/stop in PnL terms)	Hit stop 22-Mar-18	288	305	305	15	-8		15	Carry is unlikely to be offset fully given MPC hawkishness. Risk: oil prices resume an upward trend and the forward is exceeded.
Pay ECB meeting dated Jan-19 OIS (%)	Hit stop 13-Mar-18	0	0	0	0	0	-2	-6	Markets should price a larger and earlier lift-off on policy rates. Risk: lower for longer talk.
10s30s PGBs flatteners vs 10s30s BTP steepeners	Hit stop 15-Feb-18	7	20	20	-20	20	-1	-14	Supply & heightened Italian risks likely to reinforce steeper BTP curve. Risk: unexpected & elevated long-end PGB supply relative to BTP supply.
Buy EUR 5y30y ATMf straddle vs EUR 5y5y ATMf straddle	Hit stop 8-Feb-18	-180	-210	-210	-80	-210		-30	Efficient protections of steepener portfolios. Risk: steepening pressures of such magnitude erode the rolldown cushion.
Buy USD 1y 20y10y ATMf straddle vs EUR	Hit stop 8-Feb-18	0	50	50	50	-10		50	We should expect USD vol to command a premium over EUR vol. Risk: abrupt appearance of strong risk off sentiments in European markets.
Sell OAT May48 vs Bund Aug48	Hit stop 2-Feb-18	48	42	42	65	42	-1	-6	Greater supply risk from France, while ECB extends duration in Germany. Risk: yield grab.
Buy gilt Dec27 vs Jul19	Hit stop 30-Jan-18	71	85	85	50	85	2	-13	MPC hikes not translating into higher 10yr yields, creating flattening risk. Risk: Brexit transition deal in early 2018 prompting bear-steepening.
Buy gilt Jul47 YYS vs Dec27	Hit target 1-Feb-18	41	30	30	30	46		11	10yr spreads likely to cheapen on a bearish yield view. Risk: early election called which triggers the market to price greater fiscal risk.
Rec €2y1y vs €4y1y	Hit target 25-Jan-18	53	70	70	70	43	1	17	Rising ECB neutral rates should see more convexly priced on the curve. Risk: much more imminent tightening.
Receive SEK 1y1y (Target/stop in PnL terms)	Hit stop 11-Jan-18	0	14	10	20	-10	12	-10	We see the ECB as excessively gradual relative to the data. Risk: Riksbank talk of pre-empting the ECB.
Sell OAT May48 vs Bund Aug48	Year-end close 18 Dec 2017	49	47	47	60	40	2	-1	Greater supply risk from France, while ECB extends duration in Germany Risk: Failure of ECB to extend in Germany due to tightly held long-end paper
EUR 3y fwd 2s30s steepener (target/stop in PnL terms)	Year-end close 18 Dec 2017	115	100	102	30	-15	6	-13	Benefits from strong growth, attractive risk-reward Risk: Any risk-off flattening curves globally.
Buy EFSF May26 vs OAT May26	Year-end close 18 Dec 2017	3	9	9	-10	13	0	-7	EFSF supply done with, higher rating than France. Risk: sharp rally in the more liquid OAT market.
1x2 Rec spread on € 3y1y (ATMF/36bp) - Target/stop in PnL terms	Year-end close 18 Dec 2017	0	1	1	15	-8		1	Tactically short front end € rates. Risk: Global economic shock that motivates rate cut expectations.
Buy gilt Dec27 vs Jul19	Year-end close 18 Dec 2017	86	71	71	55	85	2	17	The market may price policy error if the MPC hike. Risk: Hike prospects fade, but intl drivers take long-end gilt yields higher.
Rec SEK 1y1y	Hit Target 7 Dec 17	-5	-2	-15	-15	9	9	10	RV carry trade given disconnect to EUR Risk: ECB ignores euro strength
Long 1y10y/short 1y5y/short 1y30y vol	Year-end close 18 Dec 2017	-203	-141	-141	100	-250		62	Playing mean reversion. Risk: Strong implied volatility rally & flattening pressure on long-end of curve.

Source: Citi Research

Prepared for Hansi Huang

Figure 50. Closed trades (continued)

Trade	Close Date	Entry level	Live	Closing M/TM Level	Target	Stop	Carry 3m (bp)	PnL (bp)	Reasonable basis and risks
Rec USD 5y5y vs EUR	Hit Stop 8 Dec 17	101	113	125	60	125	-4	-24	Prefer \$ duration over € Hard for belly to sell-off with \$5y1y OIS is at 1.93%. Risk: An acceleration in US inflation / GDP beyond trends in Europe.
OAT Feb20 vs May22 steepener	Year-end close 18 Dec 2017	33	31	31	56	29	-2	-2	ECB gradually exiting QE and increased supply in September. Risk: Geo-political tension
Sell SPGBel24 break-even vs BTPeI26	Year-end close 18 Dec 2017	12	12	12	0	18	2	0	Historically wide level. Risk: Continued supply focus in long-dated SPGBel's.
Buy DSL Jul23 vs BNG Jul23	Year-end close 18 Dec 2017	-17	-16	-16	-29	-9	-1	-1	Step up in quality before markets are caught by summer inertia. Risk: Bullish market movement during summer absent any supply.
Pay 6m 1y1y GBP versus EUR	Year-end close 18 Dec 2017	0	-1	-1	40	-20		-1	Probability of a BOE hike has been overcooked. Risk: Pricing of a series of BoE hikes.
SEK 2s5s steepener	Year-end close 18 Dec 2017	65	59	59	87	54	1	-6	Sleeping risk on more hawkish policy rate path. Risk: Dovish outcome from tolerance band in inflation mandate.
Sell SPGBel27 break-even vs OATeI27	Year-end close 18 Dec 2017	-3.5	1	1	-20	5	0	-5	Relative supply prospects & cash flows could weigh on richness. Risk: Lack of supply in SPGBel27 in favour of SPGBel21.
OATeI47-27 break-even flattener	Year-end close 18 Dec 2017	56.5	53	53	45	63	-1	4	Fade the richness of OATeI47 break-even. Risk: Positive real yield keeps up RM demand in OATeI47.
Buy FBAVP Sep24 vs OLO Oct24	Year-end close 18 Dec 2017	23	24	24	10	32	1	1	Historically cheap level Risk: Very large supply by Belgian covered bond issuers.
Buy EIB Apr33 vs OAT Oct32	Year-end close 18 Dec 2017	-6	7	7	-23	15	-2	-17	Supportive fundamentals, technicals and entry level to move up in quality. Risks: High unexpected issuance in 15yr EIB, a downgrade of EIB.
Long RX vs RFGB Apr26	Year-end close 18 Dec 2017	24	18	18	35	15		-6	ECB will start to hit 33% limit in RFGBs quicker than other core EGBs. Risk: Sudden repo cheapening in Germany
Buy NRW Dec20 vs ONT Sep20	Year-end close 18 Dec 2017	-2	-8	-8	-10	3	0	6	Canadian provinces have performed too well and look rich. Risk: NRW supply in the front end and QE modality amendments.
Buy €2y1y 0.00/0.27/0.47 payer ladder	Year-end close 18 Dec 2017	0	2	2	15	-5		2	Expensive 2y1y payer skew. Risk: 95bp sell off of 1y swap over the life of the trade
Buy €1y-5y5y 1.73/1.37/1.01/0.65 midcurve recr condor	Year-end close 18 Dec 2017	60	150	150	150			90	Monetizing 100bp trading range of 5y5y rate. Risk: Strong curve pressures that push 5y5y rate beyond profit range.
Sell 5y5y UK RPI	Year-end close 18 Dec 2017	3.59	3.39	3.36	3.10	3.47		23	Market has got ahead of itself and expect a correction lower. Risk: Higher spot infl creates bullish mood for infl expectations.
Buy gilt Jul26 yield-swap vs Dec46	Year-end close 18 Dec 2017	36	47	47	50	29		11	10s30s swap spread box tends to reverse when QE pauses. Risks: Futures selling drives 10s cheaper & LDI drives 30s richer.
Receive € 2y fwd 2s5s10s	Year-end close 18 Dec 2017	-11.8	-11	-13	-28	0	3	1	Forward cheapening unlikely to be realized. Risk: Upside surprise in inflation forcing market to price hawkish ECB.
Buy EUR 2y2y 0.12/0.37/0.62 payer ladder	Year-end close 18 Dec 2017	0	7	7	15	-5		7	Historically cheap refinatory trade. Risk: Disorderly implied vol rally.
Buy KfW Jun24 vs EU Apr24	Year-end close 18 Dec 2017	9	11	11	0	15	1	-2	Volatility provides opportunity to move to higher rated KfW at a pick-up. Risks: Sell-off in liquid German assets & unexpected KfW 8yr supply.
Buy KfW Jan24 vs CADES Jan24	Hit Stop 6 Dec 17	-2	4	4	-16	4	0	-6	End of QE and wider OAT Bund forecasts Risk: Large KfW supply in the 7-year sector of the curve.
Buy KfW Jun24 vs OLO Jun24	Hit Stop 7 Dec 17	0	-8	-8	15	-8	-1	-8	With supportive technical at a flat spread, move up in quality. Risk: Downgrade of KfW & heavy supply in the 7yr sector from KfW.
Sell 5y5y HICPxT inflation swap	Hit Stop 23 Nov 17	2	2	2	1	2		7	ECB taper slows progress to higher inflation with DEU still the cap. Risks: Higher inflation near term/ pause in supply supports.
Buy OATeI27 break-even vs BundeI26	Hit Stop 30 Nov 17	11	5	5	21	6	0	-6	Cheapest linker on the curve. Risk: Concession that takes the bond past its range vs BundeI26
Sell RAGB Sep21 vs Bund Sep21	Hit Stop 30 Nov 17	11	5	5	23	5	-1	-6	Lack of supply and upcoming Austrian election as an event risk. Risk: Sharp sell-off in more liquid Bund / unexpected upgrade of Austria.
Sell €6m5y5y 1.75% payer / buy 6m5y5y 1.5/1.0% Rec spread	Trade expired 10 Nov 17	0	1	1	100	180	0	1	Terminal rates likely to be below 2%. Risk: Global taper tantrum.
€3y 5s30s steepener (Target/stop in PnL terms)	Rolling into €3y 2s30s 9 Nov 2017	71	75	80	25	-12	5	9	QE tapering is a steepener. Risk: Any risk-off flattening curves globally.
Sell BundeI46 real yield	Hit Stop 8 Nov 17	0.0	0	0	0	0	3	-15	Real yields should cheapen on projected ECB taper. Risk: Any growth shock arresting central bank exits.
2s5s BTP steepener vs Bunds	Hit Stop 1 Nov 17	64	39	39	114	39	4	-16	Positive carry proxy for 10yr BTP-Bund spread. Risk: Change in the sensitivity of 2s5s BTP-Bund box with 10yr spread.
Buy Nov17 MPC Sonia	Hit Stop 25 Oct 17	35	43	43	22	43		-8	Rate hike this year unlikely given Carney's relative dovishness. Risk: Wage growth picks up in the second half.
Buy € 1y1y30y forward implied volatility	Hit target 19 Oct 2017	278	385	385	385	250		107	Higher implied vol from increased macro/political uncertainties. Risk: Flattening of the 30y swap implied vol term structure
10s30s Bund flattener	Hit Stop 12 Sep 17	81	87	87	65	87	-5	-6	Demise of US inflation infers a new bull flattening phase on the € rates. Risk: A turnaround in the disinflation theme.

Source: Citi Research

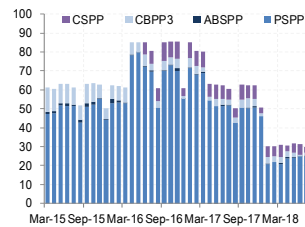
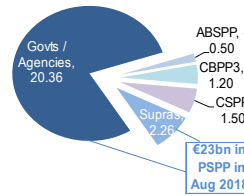
QE Tracker

Figure 51. Monthly ECB QE Tracker (€bn)

	Govts / Agencies	Supras	Total PSPP	ABSPP	CBPP3	CSPP	TOTAL QE
Mar-15	41.7	5.7	47.38	1.2	12.6		61.1
Apr-15	42.0	5.7	47.70	1.2	11.5		60.3
May-15	45.4	6.2	51.62	1.4	10.0		63.1
Jun-15	45.2	6.3	51.44	1.6	10.2		63.2
Jul-15	45.1	6.3	51.36	0.9	9.0		61.3
Aug-15	37.4	5.4	42.83	1.3	7.5		51.6
Sep-15	44.7	6.3	51.01	1.9	10.1		63.0
Oct-15	46.0	6.2	52.18	1.6	10.0		63.7
Nov-15	48.5	6.7	55.11	0.6	6.9		62.6
Dec-15	38.9	5.4	44.31	0.1	5.8		50.3
Jan-16	46.9	6.0	52.96	2.3	7.2		62.4
Feb-16	46.9	6.4	53.36	1.0	7.8		62.1
Mar-16	46.6	6.4	53.06	0.4	7.8		61.3
Apr-16	69.8	8.7	78.50	0.1	6.6		85.2
May-16	72.0	7.7	79.67	0.0	5.6		85.2
Jun-16	65.0	7.0	72.07	0.5	6.1	6.4	85.1
Jul-16	62.9	6.7	69.66	0.9	3.3		80.6
Aug-16	45.4	5.1	50.51	-0.2	3.5	6.7	60.5
Sep-16	62.9	7.1	69.97	0.5	4.7	9.9	85.1
Oct-16	65.7	7.3	72.97	0.6	3.4	8.4	85.4
Nov-16	63.0	7.2	70.15	1.3	5.0	9.0	85.4
Dec-16	49.6	5.4	55.03	0.3	1.4	4.0	60.8
Jan-17	64.2	7.2	71.36	0.5	4.7	8.4	85.0
Feb-17	61.4	6.8	68.21	0.1	4.3	7.8	80.5
Mar-17	61.9	6.9	68.81	0.7	2.4	8.3	80.3
Apr-17	48.9	5.4	54.31	-0.4	1.9	6.8	62.6
May-17	46.3	5.2	51.49	-0.1	3.6	7.6	62.5
Jun-17	46.4	5.2	51.61	0.5	3.3	7.0	62.4
Jul-17	46.6	5.3	51.88	0.5	2.5	5.6	60.4
Aug-17	38.5	4.3	42.84	-0.2	2.7	4.7	50.0
Sep-17	45.7	5.1	50.80	-0.3	4.1	8.0	62.6
Oct-17	45.1	5.1	50.17	0.6	4.7	6.9	62.4
Nov-17	45.7	5.1	50.75	0.7	3.9	7.2	62.6
Dec-17	41.6	4.6	46.18	-0.4	1.3	3.1	50.2
Jan-18	18.8	2.1	20.91	0.3	3.4	5.6	30.2
Feb-18	19.6	2.2	21.80	-0.1	3.1	5.4	30.2
Mar-18	18.7	2.1	20.77	0.8	2.9	6.4	30.9
Apr-18	21.2	2.4	23.63	1.0	2.8	3.1	30.6
May-18	21.8	2.4	24.23	0.4	2.0	5.0	31.6
Jun-18	22.5	2.5	24.97	0.1	0.7	5.5	31.2
Jul-18	22.6	2.5	25.02	0.3	1.5	3.0	29.9
Aug-18	20.4	2.3	22.62	-0.5	1.2	1.5	24.8
HOLDINGS*			2,059.2	27.2	257.1	166.5	2,510

*Holdings at amortized cost, at month end

Aug 2018 QE



Source: Citi Research

Figure 52. Net monthly PSPP flows (€bn)

	MONTHLY PURCHASES (€bn) before amortisations											Supras	Total PSPP
	Germany	France	Italy	Spain	Netherlands	Belgium	Austria	Portugal	Finland	Ireland	Other sovs		
Mar-15	11.1	8.8	7.6	5.4	2.5	1.5	1.2	1.1	0.8	0.7	1.0	5.7	47.4
Apr-15	11.1	8.6	7.6	5.5	2.5	1.5	1.2	1.1	0.8	0.7	1.3	5.7	47.7
May-15	12.1	9.5	8.2	5.9	2.7	1.7	1.3	1.2	0.8	0.8	1.3	6.2	51.6
Jun-15	12.0	9.4	8.2	5.9	2.7	1.7	1.3	1.2	0.8	0.8	1.3	6.3	51.4
Jul-15	12.0	9.5	8.2	5.9	2.7	1.6	1.4	1.2	0.9	0.8	1.0	6.3	51.4
Aug-15	9.9	8.1	6.7	4.9	2.2	1.4	1.1	1.0	0.7	0.6	0.9	5.4	42.8
Sep-15	11.9	9.5	8.2	5.8	2.6	1.6	1.3	1.1	0.8	0.8	1.0	6.3	51.0
Oct-15	12.2	10.0	8.4	6.0	2.7	1.7	1.3	1.2	0.8	0.8	0.9	6.2	52.2
Nov-15	12.9	10.2	8.9	6.3	2.9	1.8	1.4	1.2	0.9	0.8	1.1	6.7	55.1
Dec-15	10.4	8.3	7.2	5.1	2.2	1.4	1.2	1.0	0.7	0.7	0.7	5.4	44.3
Jan-16	12.3	10.0	8.6	6.1	2.8	1.7	1.3	1.2	0.9	0.8	1.2	6.0	53.0
Feb-16	12.4	10.0	8.5	6.1	2.8	1.7	1.4	1.2	0.9	0.8	1.1	6.4	53.4
Mar-16	12.4	9.9	8.5	6.1	2.8	1.7	1.4	1.2	0.9	0.8	1.0	6.4	53.1
Apr-16	19.0	14.9	13.0	9.3	4.2	2.6	2.1	1.4	1.3	1.1	0.8	8.7	78.5
May-16	19.6	15.4	13.4	9.6	4.4	2.7	2.1	1.5	1.4	1.1	0.8	7.7	79.7
Jun-16	16.9	13.7	12.8	9.2	3.8	2.3	1.8	1.4	1.2	1.1	0.7	7.0	72.1
Jul-16	17.2	13.6	11.9	8.5	3.8	2.4	1.9	1.0	1.2	1.0	0.6	6.7	69.7
Aug-16	12.4	9.8	8.5	6.1	2.9	1.7	1.4	0.7	0.9	0.7	0.4	5.1	50.5
Sep-16	17.2	13.6	11.8	8.5	3.8	2.4	1.9	1.0	1.2	1.0	0.5	7.1	70.0
Oct-16	18.0	14.2	12.3	8.8	4.0	2.5	2.0	1.0	1.3	1.0	0.6	7.3	73.0
Nov-16	17.3	13.5	11.7	8.5	3.8	2.4	1.9	1.0	1.2	1.0	0.8	7.2	70.1
Dec-16	13.6	10.7	9.4	6.7	3.0	1.9	1.5	0.7	0.9	0.6	0.6	5.4	55.0
Jan-17	17.7	14.2	12.3	8.8	4.0	2.5	2.0	0.7	0.8	0.5	0.6	7.2	71.4
Feb-17	17.0	13.6	11.8	8.4	3.8	2.4	1.9	0.7	0.7	0.6	0.7	6.8	68.2
Mar-17	17.0	13.7	11.9	8.5	3.9	2.4	2.0	0.7	0.7	0.6	0.7	6.9	68.8
Apr-17	12.5	11.3	9.8	6.6	3.0	2.0	1.6	0.5	0.7	0.5	0.5	5.4	54.3
May-17	11.9	10.8	9.4	6.0	2.6	1.9	1.5	0.5	0.6	0.5	0.5	5.2	51.5
Jun-17	11.9	10.8	9.3	6.2	2.6	1.9	1.5	0.5	0.6	0.5	0.5	5.2	51.6
Jul-17	12.2	10.1	9.6	6.3	2.7	1.9	1.5	0.5	0.7	0.6	0.5	5.3	51.9
Aug-17	9.8	9.3	7.7	5.1	2.2	1.5	1.2	0.4	0.5	0.5	0.3	4.3	42.8
Sep-17	11.7	11.1	9.2	6.1	2.6	1.9	1.5	0.5	0.2	0.6	0.5	5.1	50.8
Oct-17	11.6	10.5	9.1	6.0	2.6	1.8	1.5	0.5	1.1	0.0	0.6	5.1	50.2
Nov-17	11.6	10.4	9.1	6.0	2.6	1.8	1.4	0.5	0.6	1.2	0.5	5.1	50.7
Dec-17	10.7	9.2	8.0	6.0	2.4	1.7	1.3	0.5	0.6	0.7	0.6	4.6	46.2
Jan-18	4.8	4.0	3.4	2.7	1.1	0.7	0.6	0.5	0.3	0.4	0.5	2.1	20.9
Feb-18	5.1	4.2	3.6	2.8	1.1	0.8	0.6	0.5	0.3	0.4	0.1	2.2	21.8
Mar-18	4.8	4.0	3.4	2.8	1.1	0.7	0.6	0.5	0.3	0.4	0.2	2.1	20.8
Apr-18	4.7	4.6	4.0	3.1	1.3	0.8	0.6	0.6	0.5	0.6	0.4	2.4	23.6
May-18	6.9	4.2	3.6	2.8	1.2	0.7	0.6	0.6	0.5	0.5	0.3	2.4	24.2
Jun-18	6.0	4.5	3.9	3.1	1.3	0.8	0.6	0.6	0.5	0.6	0.4	2.5	25.0
Jul-18	6.3	4.7	4.1	3.2	0.7	0.8	0.6	0.6	0.6	0.6	0.3	2.5	25.0
Aug-18	5.4	4.1	3.6	2.8	1.3	0.7	0.6	0.6	0.5	0.5	0.3	2.3	22.6
Total flows	503.4	410.0	356.4	253.5	111.8	71.5	56.7	35.5	32.6	29.3	28.6	225.9	2115.2
Capital Key	26%	21%	18%	13%	6%	4%	3%	3%	2%	2%			

Source: Citi Research

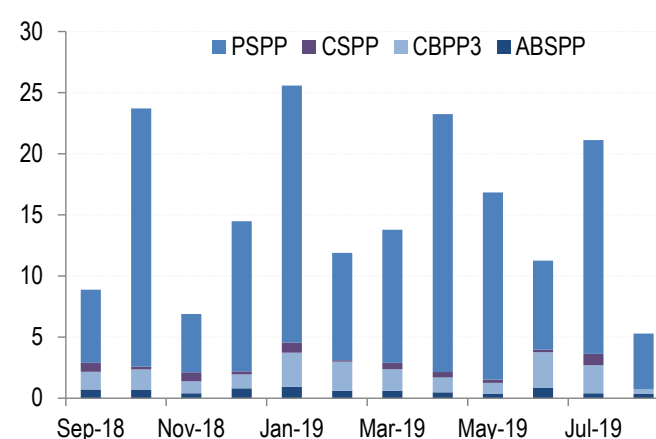
Prepared for Hansi Huang

Figure 53. ECB redemption data (€mn)

	ABSPP	CBPP3	CSPP	PSPP	Total
Sep-18	700	1,465	717	6,005	8,887
Oct-18	674	1,671	238	21,126	23,709
Nov-18	406	983	735	4,758	6,882
Dec-18	805	1,137	257	12,288	14,487
Jan-19	923	2,792	834	21,029	25,578
Feb-19	608	2,385	120	8,783	11,896
Mar-19	603	1,761	529	10,894	13,787
Apr-19	477	1,212	447	21,111	23,247
May-19	343	908	273	15,319	16,843
Jun-19	857	2,907	205	7,280	11,249
Jul-19	395	2,307	927	17,486	21,115
Aug-19	334	405	0	4,542	5,281

Source: Citi Research, ECB

Figure 54. ECB redemption data (€bn)



Source: Citi Research, ECB

Figure 55. EGB redemptions in the ECB's QE portfolio (Citi estimates)

	DEU	FIN	NLD	AUT	BEL	FRA	ITA	ESP	IRL	PRT	EGB
Mar-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-17	0.3	0.0	0.0	0.0	0.4	0.0	0.9	0.0	0.0	0.0	1.5
Jul-17	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	4.0
Aug-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep-17	0.0	0.8	0.0	0.7	0.3	0.0	0.0	0.3	0.0	0.0	2.1
Oct-17	0.3	0.0	0.0	0.0	0.0	3.0	0.9	1.5	0.4	0.9	7.1
Nov-17	0.0	0.0	0.1	0.0	0.0	0.4	0.7	0.0	0.0	0.0	1.1
Dec-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jan-18	0.6	0.0	1.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	3.5
Feb-18	1.6	0.0	0.0	0.0	0.0	1.8	1.9	0.0	0.0	0.0	5.3
Mar-18	1.6	0.0	0.0	0.0	1.2	0.0	0.4	0.0	0.0	0.0	3.3
Apr-18	8.7	0.0	2.9	0.0	0.0	4.5	0.0	2.7	0.0	0.0	18.9
May-18	0.0	0.0	0.0	0.0	0.0	3.6	1.5	0.0	0.0	0.0	5.2
Jun-18	3.8	0.0	0.0	0.0	1.4	0.0	2.9	0.0	0.0	1.6	9.6
Jul-18	5.0	0.0	3.1	0.0	0.0	1.8	0.0	3.5	0.0	0.0	13.4
Aug-18	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.7
Sep-18	2.8	1.1	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	5.1
Oct-18	4.9	0.0	0.0	1.0	0.0	4.8	1.5	4.1	0.0	0.0	16.3
Nov-18	0.0	0.0	0.0	0.0	0.0	2.5	1.5	0.0	0.0	0.0	4.0
Dec-18	5.1	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	10.4
Jan-19	9.2	0.0	5.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	17.9
Feb-19	3.2	0.0	0.1	0.0	0.0	1.6	2.6	0.0	0.0	0.0	7.5
Mar-19	3.3	0.0	0.0	1.5	1.4	0.0	3.1	0.0	0.0	0.0	9.3
Apr-19	5.3	0.0	0.0	0.0	0.0	5.9	1.5	5.2	0.0	0.0	17.9
May-19	0.0	0.0	0.0	0.0	0.0	7.7	3.8	0.0	0.0	0.0	11.5
Jun-19	3.6	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.6	6.2
Jul-19	5.5	1.1	3.0	0.0	0.0	1.9	0.0	3.4	0.0	0.0	14.9
Aug-19	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	2.9
Sep-19	4.5	0.0	0.0	0.0	2.1	0.0	7.4	0.0	0.0	0.0	14.0
Oct-19	5.3	0.0	0.0	1.3	0.0	8.5	1.4	4.9	1.2	0.0	22.6
Nov-19	0.0	0.0	0.0	0.0	0.0	5.6	2.2	2.1	0.0	0.0	9.9
Dec-19	2.1	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	4.8

Source: Citi Research

EMU Spread Heatmaps

■ We present six cross-country heatmaps based on 3-month Z-scores (Figure 56 to Figure 61). A positive Z-score indicates that current spread is 'cheap' and a negative Z-score indicates 'richness'. Countries that don't have benchmarks in a particular sector have been shaded grey (e.g. 15yr Austria).

- All spreads have been calculated on the basis of on-the-run benchmarks.
- Blue color indicates that the current spread is trading historically cheap while red color indicates that the current spread is trading historically rich.
- For better identification of rich/cheap spreads, we have highlighted cells which have a **Z-Score of greater than 2 or less than -2 in bold italics**.

Figure 56. 3 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	-0.2	-0.6	0.3	-0.5	0.2	0.4	0.2	0.0	0.6
	NLD	0.2	0	-0.5	0.5	-0.6	0.4	0.7	0.2	0.0	0.7
	AUT	0.6	0.5	0	0.7	0.1	0.7	1.1	0.2	0.2	0.7
	FIN	-0.3	-0.5	-0.7	0	-0.8	0.0	0.3	0.2	-0.1	0.6
	BEL	0.5	0.6	-0.1	0.8	0	1.1	1.0	0.2	0.1	0.7
	FRA	-0.2	-0.4	-0.7	0.0	-1.1	0	0.3	0.2	-0.1	0.6
	IRL	-0.4	-0.7	-1.1	-0.3	-1.0	-0.3	0	0.2	-0.1	0.5
	ITA	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0	-0.2	0.0
	ESP	0.0	0.0	-0.2	0.1	-0.1	0.1	0.1	0.2	0	1.0
	PRT	-0.6	-0.7	-0.7	-0.6	-0.7	-0.6	-0.5	0.0	-1.0	0

Source: Citi Research

Figure 57. 5 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	0.9	0.2	0.7	0.5	0.2	0.3	0.2	-0.2	0.2
	NLD	-0.9	0	-0.4	0.2	0.2	-0.1	0.1	0.1	-0.3	0.1
	AUT	-0.2	0.4	0	0.5	0.6	0.1	0.2	0.2	-0.2	0.1
	FIN	-0.7	-0.2	-0.5	0	0.1	-0.3	0.0	0.1	-0.3	0.1
	BEL	-0.5	-0.2	-0.6	-0.1	0	-0.6	-0.1	0.1	-0.4	0.0
	FRA	-0.2	0.1	-0.1	0.3	0.6	0	0.2	0.2	-0.3	0.1
	IRL	-0.3	-0.1	-0.2	0.0	0.1	-0.2	0	0.2	-0.3	0.1
	ITA	-0.2	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	0	-0.2	-0.1
	ESP	0.2	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0	0.5
	PRT	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.5	0

Source: Citi Research

Figure 58. 7 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	1.1	1.7	0.9	-0.7	-0.1	-0.2	0.2	-0.3	-0.2
	NLD	-1.1	0	1.6	0.0	-1.3	-0.6	-0.6	0.1	-0.5	-0.4
	AUT	-1.7	-1.6	0	-2.5	-2.2	-1.7	-1.3	0.1	-0.8	-0.6
	FIN	-0.9	0.0	2.5	0	-1.6	-0.9	-0.7	0.1	-0.6	-0.4
	BEL	0.7	1.3	2.2	1.6	0	1.7	0.9	0.3	-0.1	0.0
	FRA	0.1	0.6	1.7	0.9	-1.7	0	-0.2	0.2	-0.4	-0.2
	IRL	0.2	0.6	1.3	0.7	-0.9	0.2	0	0.2	-0.3	-0.2
	ITA	-0.2	-0.1	-0.1	-0.1	-0.3	-0.2	-0.2	0	-0.3	-0.3
	ESP	0.3	0.5	0.8	0.6	0.1	0.4	0.3	0.3	0	0.1
	PRT	0.2	0.4	0.6	0.4	0.0	0.2	0.2	0.3	-0.1	0

Source: Citi Research

Figure 59. 10 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	0.5	0.6	0.8	0.0	0.2	-0.2	0.3	-0.4	-0.3
	NLD	-0.5	0	0.5	0.8	-0.2	0.1	-0.4	0.3	-0.5	-0.4
	AUT	-0.6	-0.5	0	0.1	-0.5	-0.3	-0.6	0.2	-0.6	-0.5
	FIN	-0.8	-0.8	-0.1	0	-0.9	-0.6	-1.0	0.2	-0.7	-0.5
	BEL	0.0	0.2	0.5	0.9	0	0.7	-0.4	0.3	-0.6	-0.4
	FRA	-0.2	-0.1	0.3	0.6	-0.7	0	-0.9	0.3	-0.7	-0.5
	IRL	0.2	0.4	0.6	1.0	0.4	0.9	0	0.4	-0.4	-0.3
	ITA	-0.3	0.5	-0.2	-0.2	-0.3	-0.3	-0.4	0	-0.5	-0.5
	ESP	0.4	0.5	0.6	0.7	0.6	0.7	0.4	0.5	0	0.1
	PRT	0.3	0.4	0.5	0.5	0.4	0.5	0.3	0.5	-0.1	0

Source: Citi Research

Figure 60. 15 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	-1.1	-0.2	-0.1	-0.1	-0.3	-0.3	0.2	-0.6	-0.5
	NLD	1.1	0	0.8	0.9	0.5	0.2	0.3	0.3	-0.4	-0.3
	AUT	0.2	-0.8	0	0.1	0.1	-0.3	-0.1	0.2	-0.6	-0.5
	FIN	0.1	-0.9	-0.1	0	0.0	-0.3	-0.2	0.2	-0.6	-0.5
	BEL	0.1	-0.5	-0.1	0.0	0	-0.8	-0.3	0.2	-0.9	-0.6
	FRA	0.3	-0.2	0.3	0.3	0.8	0	0.2	0.3	-0.7	-0.4
	IRL	0.3	-0.3	0.1	0.2	0.3	-0.2	0	0.2	-0.7	-0.5
	ITA	-0.2	-0.3	-0.2	-0.2	-0.2	-0.3	-0.2	0	-0.5	-0.5
	ESP	0.6	0.4	0.6	0.6	0.9	0.7	0.7	0.5	0	0.1
	PRT	0.5	0.3	0.5	0.5	0.6	0.4	0.5	0.5	-0.1	0

Source: Citi Research

Figure 61. 30 Year

		Sell									
		DEU	NLD	AUT	FIN	BEL	FRA	IRL	ITA	ESP	PRT
Buy	DEU	0	-0.6	0.3	0.0	-0.3	-0.1	-0.3	0.1	-0.5	-0.5
	NLD	0.6	0	0.6	0.5	-0.1	0.1	-0.1	0.2	-0.5	-0.4
	AUT	-0.3	-0.6	0	-0.4	-0.5	-0.3	-0.4	0.1	-0.6	-0.6
	FIN	0.0	-0.5	0.4	0	-0.4	-0.1	-0.3	0.1	-0.6	-0.5
	BEL	0.3	0.1	0.5	0.4	0	0.7	0.0	0.3	-0.6	-0.5
	FRA	0.1	-0.1	0.3	0.1	-0.7	0	-0.5	0.2	-0.7	-0.6
	IRL	0.3	0.1	0.4	0.3	0.0	0.5	0	0.3	-0.5	-0.4
	ITA	-0.1	-0.2	-0.1	-0.1	-0.3	-0.2	-0.3	0	-0.7	-0.7
	ESP	0.5	0.5	0.6	0.6	0.6	0.7	0.5	0.7	0	0.0
	PRT	0.5	0.4	0.6	0.5	0.5	0.6	0.4	0.7	0.0	0

Source: Citi Research

Euro Relative Value Screen – All Maturities

Figure 62. Coupon adjusted spread (CAS) to fitted curve and swap curve by country (6m history) - all bonds on each curve

	Versus Govt Curve (CAS)					Versus Swap Curve (CAS)						
	Rank	Issued	Size (€bn)	ZScore	Issued	Size (€bn)	ZScore	Issued	Size (€bn)			
GERMANY	Richest	1	0.00 Apr22	-2.17	Feb17	18	Richest	1	1.25 Aug48	-0.45	Sep17	11
		2	0.00 Apr21	-1.92	Feb16	21		2	3.25 Jul42	-0.39	Jul10	15
		3	4.00 Jan37	-1.91	Jan05	23		3	2.50 Jul44	-0.38	Apr12	25
		4	2.50 Jan21	-1.90	Nov10	19		4	4.75 Jul40	-0.37	Jul08	16
		5	4.25 Jul39	-1.82	Jan07	14		5	2.50 Aug46	-0.37	Feb14	26
		5	2.50 Jul44	0.52	Apr12	25		5	0.00 Apr21	2.37	Feb16	21
		4	0.25 Feb27	1.08	Jan17	26		4	3.25 Jul21	2.39	Apr11	19
		3	2.50 Aug46	1.09	Feb14	26		3	2.25 Sep21	2.45	Aug11	16
		2	1.50 Feb23	1.23	Jan13	18		2	0.25 Oct20	2.70	Jul15	19
	Cheapest	1	1.75 Jul22	1.70	Apr12	24	Cheapest	1	0.25 Aug28	3.60	Jul18	10
FRANCE	Richest	1	0.00 May22	-2.26	Nov16	25	Richest	1	3.25 May45	0.62	Apr13	25
		2	3.25 May45	-1.62	Apr13	25		2	1.75 May66	0.69	Apr16	11
		3	4.00 Oct38	-1.40	Sep06	27		3	2.00 May48	0.73	May17	22
		4	1.75 Nov24	-1.35	Jun14	37		4	4.00 Apr55	0.99	Feb05	15
		5	1.00 May27	-1.21	Apr17	31		5	4.00 Apr60	1.02	Mar10	8
		5	5.75 Oct32	1.22	Jun01	32		5	3.00 Apr22	3.52	Feb12	46
		4	4.00 Apr55	1.50	Feb05	15		4	0.00 Feb21	4.03	Jan18	24
		3	3.75 Apr21	1.56	May05	39		3	3.75 Apr21	4.05	May05	39
		2	1.25 May34	1.75	Feb18	9		2	2.50 Oct20	4.20	Oct10	37
	Cheapest	1	4.00 Apr60	2.19	Mar10	8	Cheapest	1	0.00 Mar24	4.72	Jun18	9
ITALY	Richest	1	1.50 Jun25	-2.36	Mar15	20	Richest	1	0.05 Apr21	0.59	Apr18	13
		2	2.20 Jun27	-1.91	Feb17	17		2	0.20 Oct20	0.66	Oct17	16
		3	2.00 Feb28	-1.86	Feb18	19		3	0.65 Nov20	0.68	Nov15	15
		4	2.50 Dec24	-1.68	Sep14	20		4	3.75 Mar21 (BTS)	0.76	Sep10	24
		5	2.05 Aug27	-1.49	Jul17	19		5	0.45 Jun21	0.77	Apr16	17
		5	3.75 Mar21 (BTS)	1.04	Sep10	24		5	4.50 Mar26	0.89	Sep10	21
		4	3.75 Aug21	1.40	Feb06	28		4	2.95 Sep38	0.89	Jan18	12
		3	2.80 Mar67	1.51	Oct16	7		3	1.25 Dec26	0.89	Aug16	18
		2	3.75 May21	1.65	Oct13	18		2	3.25 Sep46	0.89	Jan15	16
	Cheapest	1	2.95 Sep38	1.69	Jan18	12	Cheapest	1	2.00 Dec25	0.91	Sep15	18
N'LANDS	Richest	1	3.75 Jan23	-0.77	Feb06	4	Richest	1	2.75 Jan47	-0.33	Feb14	13
		2	0.25 Jul25	-0.67	Mar15	15		2	3.75 Jan42	-0.30	May10	15
		3	0.75 Jul28	-0.39	Mar18	10		3	4.00 Jan37	0.07	Apr05	16
		4	2.75 Jan47	-0.28	Feb14	13		4	2.50 Jan33	0.37	Mar12	14
		5	0.50 Jul26	-0.19	Mar16	15		5	0.75 Jul28	0.64	Mar18	10
		5	0.00 Jan24		Oct17	13		5	1.75 Jul23	1.66	Mar13	16
		4	2.50 Jan33		Mar12	14		4	0.00 Jan24	1.68	Oct17	13
		3	4.00 Jan37	0.51	Apr05	16		3	2.25 Jul22	1.91	Feb12	15
		2	2.00 Jul24	0.61	Mar14	15		2	3.25 Jul21	2.47	Mar11	16
	Cheapest	1	0.75 Jul27	1.48	Feb17	15	Cheapest	1	0.00 Jan22	2.64	Jun16	15
SPAIN	Richest	1	1.40 Apr28	-1.34	Jan18	21	Richest	1	4.85 Oct20	1.13	Jul10	18
		2	2.15 Oct25	-1.04	Jun15	22		2	2.90 Oct46	1.23	Mar16	16
		3	0.45 Oct22	-1.02	Oct17	17		3	2.70 Oct48	1.24	Feb18	9
		4	2.35 Jul33	-1.00	Mar17	15		4	5.15 Oct44	1.24	Oct13	14
		5	2.70 Oct48	-0.90	Feb18	9		5	3.45 Jul66	1.24	May16	9
		5	0.75 Jul21	1.08	Mar16	22		5	1.60 Apr25	1.53	Jan15	21
		4	0.35 Jul23	1.10	May18	9		4	5.75 Jul32	1.54	Jan01	21
		3	3.80 Apr24	1.14	Jan14	21		3	4.65 Jul25	1.57	Feb10	23
		2	3.45 Jul66	1.27	May16	9		2	1.95 Jul30	1.57	Mar15	21
	Cheapest	1	4.65 Jul25	1.33	Feb10	23	Cheapest	1	1.40 Jul28	2.00	Jul18	12
BELGIUM	Richest	1	1.90 Jun38	-1.46	Sep15	7	Richest	1	1.90 Jun38	1.22	Sep15	7
		2	1.00 Jun26	-1.13	Jan16	14		2	3.75 Jun45	1.31	Sep13	10
		3	2.25 Jun23	-0.85	Jan13	14		3	4.25 Mar41	1.34	Apr10	17
		4	0.50 Oct24	-0.75	Feb17	7		4	1.60 Jun47	1.38	Mar16	10
		5	1.25 Apr33	-0.75	Mar18	5		5	2.15 Jun66	1.48	May16	4
		5	4.25 Sep21	0.95	Jan11	17		5	3.75 Sep20	3.62	Jan10	19
		4	4.00 Mar32	0.96	Mar12	8		4	0.50 Oct24	3.82	Feb17	7
		3	4.25 Mar41	1.11	Apr10	17		3	0.80 Jun25	3.95	Jan15	16
		2	0.80 Jun25	1.33	Jan15	16		2	2.60 Jun24	4.37	Jan14	16
	Cheapest	1	1.45 Jun37	1.75	May17	5	Cheapest	1	0.20 Oct23	5.05	May16	8

Source: Citi Research

Prepared for Hansi Huang

Euro Relative Value Screen – Sub-12yr

Figure 63. Coupon adjusted spread (CAS) to fitted curve and swap curve by country (6m history) - bonds with a maximum maturity of 12yrs

	Versus Govt Curve (CAS)					Versus Swap Curve (CAS)						
	Rank		ZScore	Issued	Size (€bn)	Rank		ZScore	Issued	Size (€bn)		
GERMANY	Richest	1	0.00 Apr22	-2.17	Feb17	18	Richest	1	6.25 Jan30	0.44	Jan00	9
		2	0.00 Apr21	-1.92	Feb16	21		2	0.50 Feb28	0.56	Jan18	21
		3	2.50 Jan21	-1.90	Nov10	19		3	0.50 Aug27	0.69	Jul17	25
		4	1.00 Aug25	-1.69	Jul15	23		4	0.00 Aug26	0.86	Jul16	25
		5	2.00 Jan22	-1.57	Nov11	20		5	0.50 Feb26	0.90	Jan16	26
		5	0.00 Oct22	0.30	Jul17	17		5	0.00 Apr21	2.37	Feb16	21
		4	1.50 Sep22	0.48	Sep12	18		4	3.25 Jul21	2.39	Apr11	19
		3	0.25 Feb27	1.08	Jan17	26		3	2.25 Sep21	2.45	Aug11	16
		2	1.50 Feb23	1.23	Jan13	18		2	0.25 Oct20	2.70	Jul15	19
		Cheapest	1	1.75 Jul22	1.70	Apr12	24		1	0.25 Aug28	3.60	Jul18
FRANCE	Richest	1	0.00 May22	-2.26	Nov16	25	Richest	1	2.50 May30	2.16	May14	33
		2	1.75 Nov24	-1.35	Jun14	37		2	2.75 Oct27 (OAT)	2.17	Sep12	37
		3	1.00 May27	-1.21	Apr17	31		3	0.75 May28	2.21	Oct17	33
		4	0.25 Nov26	-1.14	Sep16	30		4	0.75 Nov28	2.29	Jun18	13
		5	2.75 Oct27 (OAT)	-0.94	Sep12	37		5	1.00 May27	2.31	Apr17	31
		5	2.50 May30	0.42	May14	33		5	3.00 Apr22	3.52	Feb12	46
		4	0.00 Mar24	0.46	Jun18	9		4	0.00 Feb21	4.03	Jan18	24
		3	2.25 Oct22	0.51	Oct12	32		3	3.75 Apr21	4.05	May05	39
		2	0.00 Feb21	1.21	Jan18	24		2	2.50 Oct20	4.20	Oct10	37
		Cheapest	1	3.75 Apr21	1.56	May05	39		1	0.00 Mar24	4.72	Jun18
ITALY	Richest	1	1.50 Jun25	-2.36	Mar15	20	Richest	1	0.05 Apr21	0.59	Apr18	13
		2	2.20 Jun27	-1.91	Feb17	17		2	0.20 Oct20	0.66	Oct17	16
		3	2.00 Feb28	-1.86	Feb18	19		3	0.65 Nov20	0.68	Nov15	15
		4	2.50 Dec24	-1.68	Sep14	20		4	3.75 Mar21 (BTS)	0.76	Sep10	24
		5	2.05 Aug27	-1.49	Jul17	19		5	0.45 Jun21	0.77	Apr16	17
		5	4.75 Sep21	0.80	Mar11	25		5	1.60 Jun26	0.88	Mar16	18
		4	0.90 Aug22	0.86	Aug17	18		4	1.45 May25	0.89	Mar18	16
		3	3.75 Mar21 (BTS)	1.04	Sep10	24		3	4.50 Mar26	0.89	Sep10	21
		2	3.75 Aug21	1.40	Feb06	28		2	1.25 Dec26	0.89	Aug16	18
		Cheapest	1	3.75 May21	1.65	Oct13	18		1	2.00 Dec25	0.91	Sep15
N'LANDS	Richest	1	3.75 Jan23	-0.77	Feb06	4	Richest	1	0.75 Jul28	0.64	Mar18	10
		2	0.25 Jul25	-0.67	Mar15	15		2	0.50 Jul26	0.80	Mar16	15
		3	0.75 Jul28	-0.39	Mar18	10		3	0.25 Jul25	0.81	Mar15	15
		4	0.50 Jul26	-0.19	Mar16	15		4	0.75 Jul27	1.00	Feb17	15
		5	2.25 Jul22	-0.19	Feb12	15		5	2.00 Jul24	1.36	Mar14	15
		5	3.25 Jul21		Mar11	16		5	1.75 Jul23	1.66	Mar13	16
		4	1.75 Jul23		Mar13	16		4	0.00 Jan24	1.68	Oct17	13
		3	0.00 Jan24	0.31	Oct17	13		3	2.25 Jul22	1.91	Feb12	15
		2	2.00 Jul24	0.61	Mar14	15		2	3.25 Jul21	2.47	Mar11	16
		Cheapest	1	0.75 Jul27	1.48	Feb17	15		1	0.00 Jan22	2.64	Jun16
SPAIN	Richest	1	1.40 Apr28	-1.34	Jan18	21	Richest	1	4.85 Oct20	1.13	Jul10	18
		2	2.15 Oct25	-1.04	Jun15	22		2	5.85 Jan22	1.33	Nov11	23
		3	0.45 Oct22	-1.02	Oct17	17		3	0.05 Jan21	1.34	Jun17	18
		4	0.40 Apr22	-0.82	Jan17	21		4	0.40 Apr22	1.34	Jan17	21
		5	1.95 Apr26	-0.70	Jan16	20		5	0.35 Jul23	1.37	May18	9
		5	1.50 Apr27	1.07	Jan17	18		5	1.30 Oct26	1.52	Jul16	23
		4	0.75 Jul21	1.08	Mar16	22		4	1.60 Apr25	1.53	Jan15	21
		3	0.35 Jul23	1.10	May18	9		3	4.65 Jul25	1.57	Feb10	23
		2	3.80 Apr24	1.14	Jan14	21		2	1.95 Jul30	1.57	Mar15	21
		Cheapest	1	4.65 Jul25	1.33	Feb10	23		1	1.40 Jul28	2.00	Jul18
BELGIUM	Richest	1	1.00 Jun26	-1.13	Jan16	14	Richest	1	4.25 Sep22	3.09	Jan12	16
		2	2.25 Jun23	-0.85	Jan13	14		2	0.80 Jun28	3.17	Jan18	12
		3	0.50 Oct24	-0.75	Feb17	7		3	2.25 Jun23	3.19	Jan13	14
		4	0.80 Jun28	-0.10	Jan18	12		4	0.80 Jun27	3.20	Jan17	14
		5	3.75 Sep20	0.31	Jan10	19		5	1.00 Jun26	3.21	Jan16	14
		5	0.80 Jun27	0.64	Jan17	14		5	3.75 Sep20	3.62	Jan10	19
		4	4.50 Mar26	0.74	Jun11	11		4	0.50 Oct24	3.82	Feb17	7
		3	0.20 Oct23	0.80	May16	8		3	0.80 Jun25	3.95	Jan15	16
		2	4.25 Sep21	0.95	Jan11	17		2	2.60 Jun24	4.37	Jan14	16
		Cheapest	1	0.80 Jun25	1.33	Jan15	16		1	0.20 Oct23	5.05	May16

Source: Citi Research

Prepared for Hansi Huang

Euro Relative Value Screen – 8yr+

Figure 64. Coupon adjusted spread (CAS) to fitted curve and swap curve by country (6m history) - bonds with a minimum maturity of 8yrs

	Versus Govt Curve (CAS)						Versus Swap Curve (CAS)						
	Rank	Coupon	Issued	Size (€bn)	ZScore		Rank	Coupon	Issued	Size (€bn)	ZScore		
GERMANY	Richest	1	4.00 Jan37	Jan05	23	-1.91	Richest	1	1.25 Aug48	Sep17	11	-0.45	
		2	4.25 Jul39	Jan07	14	-1.82		2	3.25 Jul42	Jul10	15	-0.39	
		3	4.75 Jul34	Jan03	20	-1.77		3	2.50 Jul44	Apr12	25	-0.38	
		4	4.75 Jul40	Jul08	16	-1.25		4	4.75 Jul40	Jul08	16	-0.37	
		5	3.25 Jul42	Jul10	15	-1.19		5	2.50 Aug46	Feb14	26	-0.37	
		5	0.25 Aug28	Jul18	10	-0.02		5	6.25 Jan30	Jan00	9	0.44	
		4	1.25 Aug48	Sep17	11	0.28		4	0.50 Feb28	Jan18	21	0.56	
		3	2.50 Jul44	Apr12	25	0.52		3	0.50 Aug27	Jul17	25	0.69	
		2	0.25 Feb27	Jan17	26	1.08		2	0.25 Feb27	Jan17	26	0.91	
		Cheapest	1	2.50 Aug46	Feb14	26	1.09	Cheapest	1	0.25 Aug28	Jul18	10	3.60
FRANCE	Richest	1	3.25 May45	Apr13	25	-1.62	Richest	1	3.25 May45	Apr13	25	0.62	
		2	4.00 Oct38	Sep06	27	-1.40		2	1.75 May66	Apr16	11	0.69	
		3	1.00 May27	Apr17	31	-1.21		3	2.00 May48	May17	22	0.73	
		4	0.25 Nov26	Sep16	30	-1.14		4	4.00 Apr55	Feb05	15	0.99	
		5	1.75 Jun39	Jan17	15	-1.06		5	4.00 Apr60	Mar10	8	1.02	
		5	1.50 May31	Oct15	46	1.03		5	2.75 Oct27 (OAT)	Sep12	37	2.17	
		4	5.75 Oct32	Jun01	32	1.22		4	0.75 May28	Oct17	33	2.21	
		3	4.00 Apr55	Feb05	15	1.50		3	0.75 Nov28	Jun18	13	2.29	
		2	1.25 May34	Feb18	9	1.75		2	1.00 May27	Apr17	31	2.31	
		Cheapest	1	4.00 Apr60	Mar10	8	2.19	Cheapest	1	0.25 Nov26	Sep16	30	2.65
ITALY	Richest	1	2.20 Jun27	Feb17	17	-1.91	Richest	1	4.75 Sep44	May13	27	0.79	
		2	2.00 Feb28	Feb18	19	-1.86		2	4.75 Sep28 (IK)	Jan13	22	0.81	
		3	2.05 Aug27	Jul17	19	-1.49		3	6.00 May31	Mar00	30	0.84	
		4	1.65 Mar32	Mar15	22	-1.32		4	2.00 Feb28	Feb18	19	0.84	
		5	1.25 Dec26	Aug16	18	-0.93		5	5.00 Sep40	Sep09	22	0.85	
		5	5.00 Sep40	Sep09	22	0.63		5	5.00 Aug39	Oct07	23	0.89	
		4	3.25 Sep46	Jan15	16	0.63		4	4.00 Feb37	Oct05	27	0.89	
		3	5.00 Aug39	Oct07	23	0.98		3	2.95 Sep38	Jan18	12	0.89	
		2	2.80 Mar67	Oct16	7	1.51		2	1.25 Dec26	Aug16	18	0.89	
		Cheapest	1	2.95 Sep38	Jan18	12	1.69	Cheapest	1	3.25 Sep46	Jan15	16	0.89
N'LANDS	Richest	1	0.75 Jul28	Mar18	10	-0.39	Richest	1	2.75 Jan47	Feb14	13	-0.33	
		2	2.75 Jan47	Feb14	13	-0.28		2	3.75 Jan42	May10	15	-0.30	
		3	3.75 Jan42	May10	15	0.20		3	4.00 Jan37	Apr05	16	0.07	
		3	2.50 Jan33	Mar12	14	0.44		3	2.50 Jan33	Mar12	14	0.37	
		2	4.00 Jan37	Apr05	16	0.51		2	0.75 Jul28	Mar18	10	0.64	
		1	0.75 Jul27	Feb17	15	1.48		1	0.75 Jul27	Feb17	15	1.00	
		1	1.40 Apr28	Jan18	21	-1.34		1	2.90 Oct46	Mar16	16	1.23	
		2	2.35 Jul33	Mar17	15	-1.00		2	2.70 Oct48	Feb18	9	1.24	
		3	2.70 Oct48	Feb18	9	-0.90		3	5.15 Oct44	Oct13	14	1.24	
		4	4.90 Jul40	Jun07	18	-0.72		4	3.45 Jul66	May16	9	1.24	
	5	4.20 Jan37	Jan05	20	-0.52		5	4.70 Jul41	Sep09	20	1.25		
	5	5.15 Oct44	Oct13	14	0.72		5	1.50 Apr27	Jan17	18	1.52		
	4	1.95 Jul30	Mar15	21	0.88		4	1.30 Oct26	Jul16	23	1.52		
	3	2.90 Oct46	Mar16	16	0.94		3	5.75 Jul32	Jan01	21	1.54		
	2	1.50 Apr27	Jan17	18	1.07		2	1.95 Jul30	Mar15	21	1.57		
	Cheapest	1	3.45 Jul66	May16	9	1.27	Cheapest	1	1.40 Jul28	Jul18	12	2.00	
BELGIUM	Richest	1	1.90 Jun38	Sep15	7	-1.47	Richest	1	1.90 Jun38	Sep15	7	1.22	
		2	1.25 Apr33	Mar18	5	-0.77		2	3.75 Jun45	Sep13	10	1.31	
		3	3.75 Jun45	Sep13	10	-0.19		3	4.25 Mar41	Apr10	17	1.34	
		4	2.25 Jun57	Feb17	3	-0.18		4	1.60 Jun47	Mar16	10	1.38	
		5	0.80 Jun28	Jan18	12	-0.14		5	2.15 Jun66	May16	4	1.48	
		5	5.00 Mar35	May04	20	0.69		5	1.25 Apr33	Mar18	5	1.88	
		4	1.00 Jun31	Feb15	11	0.75		4	4.00 Mar32	Mar12	8	2.05	
		3	4.00 Mar32	Mar12	8	0.96		3	1.00 Jun31	Feb15	11	2.08	
		2	4.25 Mar41	Apr10	17	1.10		2	0.80 Jun28	Jan18	12	3.17	
		Cheapest	1	1.45 Jun37	May17	5	1.72	Cheapest	1	0.80 Jun27	Jan17	14	3.19

Source: Citi Research

UK Relative Value Screen

Figure 65. Coupon adjusted spread (CAS) to fitted curve and swap curve by maturity (6m history)

	Versus Govt Curve (CAS)						Versus Swap Curve (CAS)					
	Rank	Issued	ZScore	Issued	Size (€bn)		Rank	Issued	ZScore	Issued	Size (€bn)	
ALL	Richest	1	1.50 Jul47	-5.26	Sep16	24	Richest	1	4.25 Dec27	0.94	Sep06	31
		2	1.75 Jul57	-3.26	Jan17	17		2	4.75 Dec30	1.04	Oct07	34
		3	2.00 Jul20	-1.35	Sep14	32		3	1.62 Oct28	1.05	Mar18	14
		4	0.75 Jul23	-1.23	Jul17	29		4	1.25 Jul27	1.23	Mar17	23
		5	2.25 Sep23	-0.94	Jun13	27		5	4.25 Jun32	1.33	May00	35
		5	4.25 Dec55	1.63	May05	26		5	4.25 Dec55	2.93	May05	26
		4	4.00 Jan60	1.76	Oct09	24		4	4.75 Mar20	3.56	Mar05	33
		3	4.25 Mar36	1.87	Feb03	30		3	3.75 Sep19	3.84	Jul09	29
		2	4.00 Mar22	1.94	Feb09	38		2	1.75 Jul19	4.00	Nov13	37
		Cheapest	1	1.62 Oct71	4.15	May18	6		1	1.62 Oct71	4.15	May18
2yr - 7yr	Richest	1	0.75 Jul23 (5y)	-1.23	Jul17	29	Richest	1	0.75 Jul23 (5y)	1.96	Jul17	29
		2	2.25 Sep23	-0.94	Jun13	27		2	1.50 Jan21	2.04	Sep15	32
		3	2.75 Sep24	-0.85	Mar14	27		3	0.50 Jul22	2.05	Aug16	29
		4	5.00 Mar25	-0.48	Sep01	35		4	2.00 Sep25	2.10	Mar15	28
		5	0.50 Jul22	0.13	Aug16	29		5	5.00 Mar25	2.19	Sep01	35
		5	1.50 Jan21	0.29	Sep15	32		5	2.25 Sep23	2.23	Jun13	27
		4	2.00 Sep25	0.33	Mar15	28		4	2.75 Sep24	2.39	Mar14	27
		3	3.75 Sep21	1.17	Mar11	28		3	1.75 Sep22 (WX)	2.45	Jun12	29
		2	1.75 Sep22 (WX)	1.41	Jun12	29		2	4.00 Mar22	2.65	Feb09	38
		Cheapest	1	4.00 Mar22	1.94	Feb09	38		1	3.75 Sep21	2.70	Mar11
7yr - 15yr	Richest	1	4.25 Dec27 (G)	-0.85	Sep06	31	Richest	1	4.25 Dec27 (G)	0.94	Sep06	31
		2	4.75 Dec30	-0.63	Oct07	34		2	4.75 Dec30	1.04	Oct07	34
		3	1.62 Oct28 (10y)	-0.34	Mar18	14		3	1.62 Oct28 (10y)	1.05	Mar18	14
		4						4				
		5						5				
		4						4				
		3	1.50 Jul26	-0.20	Feb16	27		3	1.25 Jul27	1.23	Mar17	23
		2	1.25 Jul27	-0.03	Mar17	23		2	4.25 Jun32	1.33	May00	35
		1	4.25 Jun32	0.07	May00	35		1	1.50 Jul26	1.61	Feb16	27
		Cheapest	1	1.50 Jul26	1.61	Feb16	27		1	1.50 Jul26	1.61	Feb16
>15yr	Richest	1	1.50 Jul47 (30y)	-5.26	Sep16	24	Richest	1	4.50 Sep34	1.65	Jun09	32
		2	1.75 Jul57	-3.25	Jan17	17		2	1.50 Jul47 (30y)	1.91	Sep16	24
		3	4.50 Dec42	-0.93	Jun07	27		3	4.50 Dec42	2.09	Jun07	27
		4	4.25 Dec46	-0.66	May06	23		4	4.25 Mar36	2.09	Feb03	30
		5	2.50 Jul65	-0.39	Oct15	19		5	4.25 Dec46	2.12	May06	23
		5	3.50 Jul68	1.56	Jun13	19		5	3.75 Jul52	2.58	Sep11	24
		4	3.50 Jan45	1.57	Jun14	28		4	1.75 Jul57	2.65	Jan17	17
		3	4.25 Dec55	1.63	May05	26		3	4.00 Jan60	2.87	Oct09	24
		2	4.00 Jan60	1.76	Oct09	24		2	4.25 Dec55	2.93	May05	26
		Cheapest	1	1.62 Oct71	4.15	May18	6		1	1.62 Oct71	4.15	May18

Source: Citi Research

4 Week Auction Calendar: Euro, UK and US

Figure 66. Auction calendar for the next four weeks (provisional): gross issuance (local currency, billions) and DV01 (USD million/bp)*

Date	Country	Nominal Size (Local Ccy, bn)	Issue Details	DV01 \$million/bp	Approx. Number 10yr Futures		
					TYU8 (UST)	G U8 (Gilt)	RXU8 (Bund)
17 Sep (Mon)	Belgium	3.6	OLO 0.2% Oct23, 0.8% Jun28, 1.6% Jun47 and 2.25% Jun57 (issue confirmed, estimated size)				37k
18 Sep (Tue)	Germany	4.0	Schatz 0% Sep20 (issue and size confirmed)				6k
19 Sep (Wed)	Germany	3.0	Bund 0.25% Aug28 (issue and size confirmed)				20k
20 Sep (Thu)	France	7.5	OAT 2-8yr (estimated size)				22k
20 Sep (Thu)	France	1.75	OAT/vei (estimated size)				11k
20 Sep (Thu)	Spain	4.0	Bonos (estimated size)				22k
20 Sep (Thu)	UK	2.75	1.625% Treasury gilt 2028 (issue and size confirmed)			27k	
20 Sep (Thu)	US	11.0	10-Year TIPS (re-opening)		142k		
Weekly \$DV01 of Issuance				33.0			
Total Number of Futures Contracts					142k	27k	118k

Date	Country	Nominal Size (Local Ccy, bn)	Issue Details	DV01 \$million/bp	Approx. Number 10yr Futures		
					TYU8 (UST)	G U8 (Gilt)	RXU8 (Bund)
24 Sep (Mon)	US	37.0	New 2-Year		128k		
25 Sep (Tue)	Italy	1.25	BTPei (estimated size)				8k
25 Sep (Tue)	Italy	2.0	CTZ Mar20 (estimated issue and size)				2k
25 Sep (Tue)	Netherlands	2.0	DSL 0% Jan24 (issue confirmed, size €1.5-2.5bn)				7k
25 Sep (Tue)	UK	0.8	IL48 (issue and size confirmed)			42k	
25 Sep (Tue)	US	17.0	2-Year FRN (re-opening)		59k		
25 Sep (Tue)	US	38.0	New 5-Year		220k		
26 Sep (Wed)	Germany	3.0	Bobl 0% Oct23 (issue and size confirmed)				11k
27 Sep (Thu)	Italy	4.5	BTP 2.45% Oct23 and BTP 2.8% Dec28 (estimated issues and size)				19k
27 Sep (Thu)	Italy	1.5	CCTeu Sep25 (estimated issue and size)				4k
27 Sep (Thu)	US	31.0	New 7-Year		257k		
Weekly \$DV01 of Issuance				61.8			
Total Number of Futures Contracts					663k	42k	52k

Date	Country	Nominal Size (Local Ccy, bn)	Issue Details	DV01 \$million/bp	Approx. Number 10yr Futures		
					TYU8 (UST)	G U8 (Gilt)	RXU8 (Bund)
02 Oct (Tue)	Austria	1.15	RAGB 10yr and 30yr (estimated tenors and size)				13k
04 Oct (Thu)	France	8.0	OAT>8yr (estimated size)				78k
04 Oct (Thu)	Spain	4.0	Bonos (estimated size)				31k
04 Oct (Thu)	Spain	0.7	SPGBei (estimated)				5k
04 Oct (Thu)	UK	3.0	1% Treasury gilt 2024 (issue confirmed, estimated size)			17k	
Weekly \$DV01 of Issuance				22.8			
Total Number of Futures Contracts					0k	17k	126k

Date	Country	Nominal Size (Local Ccy, bn)	Issue Details	DV01 \$million/bp	Approx. Number 10yr Futures		
					TYU8 (UST)	G U8 (Gilt)	RXU8 (Bund)
09 Oct (Tue)	Germany	0.75	Bundei (estimated size)				5k
09 Oct (Tue)	UK	5.0	Syndicated 1.625% Treasury gilt 2071 (issue confirmed, estimated date and size)			187k	
10 Oct (Wed)	Germany	3.0	Bund 0.25% Aug28 (issue and size confirmed)				20k
10 Oct (Wed)	US	36.0	New 3-Year		124k		
10 Oct (Wed)	US	23.0	10-Year (re-opening)		270k		
11 Oct (Thu)	Italy	6.0	BTP 0.05% Apr21, BTP 2.5% Nov25 and >10yr BTP (estimated issues and size)				38k
11 Oct (Thu)	US	15.0	30-year (re-opening)		362k		
Weekly \$DV01 of Issuance				88.7			
Total Number of Futures Contracts					756k	187k	64k

* Additional issues expected in September/October: Netherlands (re-opening), Finland (re-opening), Ireland (re-opening), Portugal (re-opening) and potentially Italy (New BTP Italia) & Greece

Source: DMOs, Citi Research

Projected FTSE gilt index changes

Here we present our projections of FTSE conventional and linker indices in 2018².

Figure 67. FTSE Actuaries gilt index: Projected changes due to coupon payments, redemptions and bucket changes

Date*	Event	Bond	All Stock	0-5	5+	5-10	5-15	10-15	15+
12-Jan-18	Coupon Payment	-	0.010	0.000	0.024	0.010	0.000	-0.010	0.070
27-Feb-18	Coupon Payment	-	0.090	0.030	0.081	0.050	0.040	0.000	0.080
7-Mar-18	Redemption	UKT 5% Mar18	0.320	0.270					
30-May-18	Coupon Payment	-	0.150	0.010	0.188	0.030	0.070	0.180	0.200
13-Jul-18	Coupon Payment	-	0.050	0.000	0.063	0.010	0.010	0.000	0.110
22-Jul-18	Redemption	UKT 1.25% Jul18	0.250	0.360					
23-Jul-18	Bucket Change	UKT 0.75% Jul23		0.360	0.273	0.190	0.210		
30-Aug-18	Coupon Payment	-	0.020	-0.010	0.012	0.000	0.010	0.010	0.040
10-Sep-18	Bucket Change	UKT 2.25% Sep23		0.150	0.310	0.250	0.250		
29-Nov-18	Coupon Payment	-	0.053	0.002	0.097	0.020	0.066	0.166	0.100
10-Dec-18	Bucket Change	UKT 6% Dec28				0.178		0.490	

Source: Citi Research, Bloomberg. * Ex-dividend dates for coupon payment. Changes >0.1 years highlighted in bold.

Figure 68. FTSE Actuaries index-linked gilt index: Projected changes due to coupon payments, redemptions and bucket changes

Date*	Event	Bond	All Stock	0-5	5yr+	5-15	15+
8-Jan-18	Coupon Payment	-	-0.04	-0.01	-0.04	0.00	-0.02
11-Jan-18	Coupon Payment	-	-0.03	-0.01	-0.03	-0.01	-0.03
17-Jan-18	Coupon Payment	-	-0.06	0.00	-0.04	-0.01	-0.03
1-Feb-18	Coupon Payment	-	-0.02	-0.01	-0.02	-0.01	-0.01
13-Mar-18	Coupon Payment	-	0.11	0.00	0.10	0.00	0.07
5-Apr-18	Coupon Payment	-	0.00	-0.01	0.00	-0.01	0.00
11-May-18	Coupon Payment	-	-0.06	0.01	-0.06	-0.01	-0.05
6-Jul-18	Coupon Payment	-	-0.01	0.00	-0.01	-0.01	0.00
12-Jul-18	Coupon Payment	-	-0.02	-0.01	-0.02	-0.01	-0.02
17-Jul-18	Coupon Payment	-	0.01	-0.01	0.01	0.00	0.00
1-Aug-18	Coupon Payment	-	-0.07	-0.06	-0.06	-0.01	-0.05
13-Sep-18	Coupon Payment	-	-0.01	-0.01	-0.01	-0.01	-0.01
5-Oct-18	Coupon Payment	-	0.00	0.00	0.00	0.00	0.00
13-Nov-18	Coupon Payment	-	0.00	0.00	0.00	0.00	0.00

Source: Citi Research, Bloomberg. * Ex-dividend dates for coupon payment. Changes >0.1 years highlighted in bold.

² Several factors like yield level and curve shape affect the calculations and are subject to change. The changes for past dates are realised and also include any change in index duration due to daily change in yield.

EMU: Coupons & Redemptions (Next 3mths)

Figure 69. EMU-11/UK bond redemptions over the next three months (Local currency, bn)

Redemptions = €171bn												
Redemptions	DEU	FRA	NLD	ITA	ESP	BEL	AUT	FIN	PRT	GRC	IRL	GBR
(Fri) 14-Sep-18	13.0	47	0	53	20	0	7	5	0	0	9	0
(Sat) 15-Sep-18				11.3				5.0				
(Fri) 12-Oct-18	17.0											
(Mon) 15-Oct-18				12.2								
(Thu) 18-Oct-18											8.8	
(Fri) 19-Oct-18							7.1					
(Thu) 25-Oct-18		27.5										
(Wed) 31-Oct-18					20.4							
(Thu) 01-Nov-18				10.3								
(Sun) 25-Nov-18		19.9										
(Sat) 01-Dec-18				18.8								

Source: DMOs, Bloomberg, Citi Research

This table is on a calendar-date basis

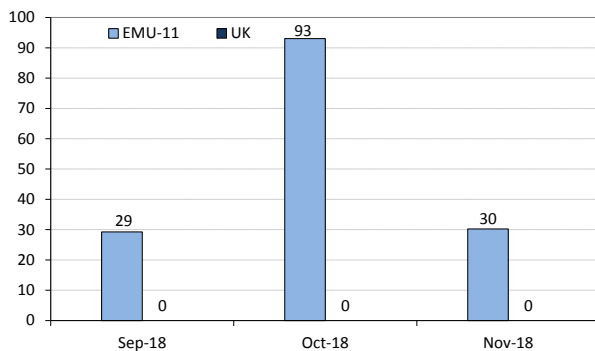
Figure 70. EMU-11/UK coupon payments over the next three months (Local currency, bn)

Coupons = €44bn												
Coupons	DEU	FRA	NLD	ITA	ESP	BEL	AUT	FIN	PRT	GRC	IRL	GBR
(Sat) 15-Sep-18	0	15	0	10	8	3	2	0	1	0	1	4
(Thu) 20-Sep-18				1.8			0.6	0.2				
(Sat) 22-Sep-18							0.1					0.3
(Fri) 28-Sep-18						2.5						
(Mon) 01-Oct-18				0.1								
(Thu) 11-Oct-18	0.04			0.02								
(Fri) 12-Oct-18	0.2											
(Mon) 15-Oct-18				0.3					0.4			
(Tue) 16-Oct-18	0.05											0.2
(Wed) 17-Oct-18									0.4			
(Thu) 18-Oct-18							0.02				1.1	
(Fri) 19-Oct-18							0.1					
(Sat) 20-Oct-18				0.02			0.4					
(Sun) 21-Oct-18							0.2					
(Mon) 22-Oct-18						0.1				0.03		0.2
(Tue) 23-Oct-18				0.2								
(Wed) 24-Oct-18				0.01								
(Thu) 25-Oct-18		13.7							0.5			
(Sat) 27-Oct-18				0.05								
(Wed) 31-Oct-18					7.7							
(Thu) 01-Nov-18				5.3								
(Fri) 02-Nov-18							0.04					
(Thu) 15-Nov-18				0.5								
(Tue) 20-Nov-18				0.01								
(Wed) 21-Nov-18				0.02								
(Thu) 22-Nov-18				0.02			0.4					0.8
(Sun) 25-Nov-18		1.5										
(Fri) 30-Nov-18					0.5							
(Sat) 01-Dec-18				1.6								
(Fri) 07-Dec-18												2.5

Source: DMOs, Bloomberg, Citi Research

This table is on a calendar-date basis

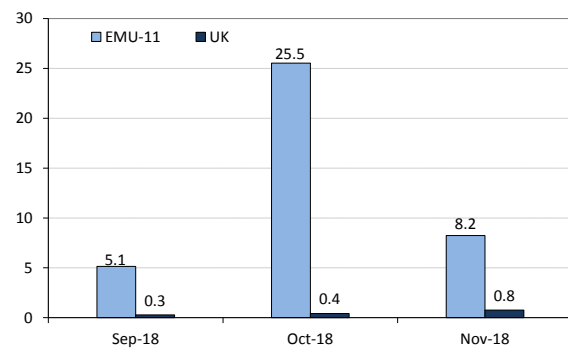
Figure 71. EMU-11/UK remaining redemptions (rolling 3m, LC, bn)



Source: DMOs, Bloomberg, Citi Research

This chart is on a calendar-date basis

Figure 72. EMU-11/UK remaining coupons (rolling 3m, LC, bn)



Source: DMOs, Bloomberg, Citi Research

This chart is on a calendar-date basis

Inflation Forecasts, Carry & Weekly Changes

Figure 73. Citi Inflation Forecasts

Month	EUR HICPxT			France CPIxT			UK RPI			US CPURNSA		
	Index Forecast	MoM Change	YoY Change	Index Forecast	MoM Change	YoY Change	Index Forecast	MoM Change	YoY Change	Index Forecast	MoM Change	YoY Change
Jul 18	103.41	-0.3	2.1	102.96	-0.1	2.0	281.70	0.1	3.2	252.01	0.0	2.9
Aug 18	103.58	0.2	1.9	103.48	0.5	2.0	283.48	0.6	3.2	252.15	0.1	2.7
Sep 18	103.94	0.3	1.9	103.24	-0.2	1.9	284.10	0.2	3.3	252.76	0.2	2.4
Oct 18	104.08	0.1	1.9	103.12	-0.1	1.7	284.68	0.2	3.4	253.16	0.2	2.6
Nov 18	104.03	-0.0	1.8	103.10	-0.0	1.6	284.31	-0.1	3.1	252.98	-0.1	2.6
Dec 18	104.37	0.3	1.8	103.42	0.3	1.6	286.64	0.8	3.1	252.89	-0.0	2.6

Source: Citi Research, Bloomberg

Shaded = Already released

Figure 74. US TIPS Inflation-linked Carry (based on forecasts above) – One week changes

Bond	RY (%)	Chg (bp)	Carry-adj chg	Carry: RY (bp)			Reference Conventional	BE (bp)	Chg (bp)	Carry-adj chg	Carry: BE (bp)			ZC Swap - BE Spread (bp)	Chg (bp)
				1 Nov	3 Dec	1 Jan					1 Nov	3 Dec	1 Jan		
Repo (%)				2.19	2.17	2.22									
TIPS 1.375% 1/20	0.82	-0	1	-10	1	5	T-1.375-01/31/20	183	8	6	-15	-7	-7	8	-7
TIPS 0.125% 4/20	0.98	2	3	-7	4	7	T-1.375-04/30/20	172	6	5	-11	-4	-4	15	-5
TIPS 1.25% 7/20	0.61	2	4	-9	-2	-1	T-2.000-07/31/20	211	7	5	-13	-9	-10	12	-6
TIPS 1.125% 1/21	0.84	4	5	-5	1	3	T-2.125-01/31/21	193	5	4	-9	-5	-5	12	-4
TIPS 0.125% 4/21	0.91	4	5	-4	2	3	T-1.375-04/30/21	187	5	4	-7	-4	-4	15	-4
TIPS 0.625% 7/21	0.69	4	5	-5	0	0	T-2.250-07/31/21	210	5	4	-8	-6	-6	15	-4
TIPS 0.125% 1/22	0.84	5	6	-4	1	2	T-1.500-01/31/22	198	4	3	-6	-4	-4	15	-2
TIPS 0.125% 4/22	0.89	6	7	-3	1	2	T-1.875-03/31/22	194	4	3	-6	-3	-4	17	-1
TIPS 0.125% 7/22	0.73	6	7	-4	0	1	T-1.625-08/15/22	211	4	2	-6	-4	-5	17	-1
TIPS 0.125% 1/23	0.83	7	7	-3	0	1	T-2.000-02/15/23	201	2	1	-5	-3	-3	17	0
TIPS 0.625% 4/23	0.86	7	7	-3	1	1	T-2.750-04/30/23	199	3	2	-5	-3	-3	17	0
TIPS 0.375% 7/23	0.73	6	7	-3	0	0	T-2.500-08/15/23	211	3	2	-5	-3	-4	18	0
TIPS 0.625% 1/24	0.82	6	7	-2	0	1	T-2.750-02/15/24	203	2	1	-4	-3	-3	18	0
TIPS 0.125% 7/24	0.76	6	7	-2	0	1	T-2.375-08/15/24	212	2	1	-4	-3	-3	19	0
TIPS 2.375% 1/25	0.82	4	5	-2	0	1	T-2.000-02/15/25	208	4	3	-4	-2	-3	16	-1
TIPS 0.25% 1/25	0.82	5	5	-2	0	1	T-2.000-02/15/25	208	3	3	-3	-2	-3	17	-1
TIPS 2% 1/26	0.84	4	5	-2	0	1	T-1.625-02/15/26	208	4	3	-3	-2	-2	18	-2
TIPS 0.625% 1/26	0.84	4	5	-2	0	1	T-1.625-02/15/26	208	4	3	-3	-2	-2	18	-2
TIPS 0.125% 7/26	0.79	4	5	-2	0	1	T-1.500-08/15/26	213	3	2	-3	-2	-2	20	-2
TIPS 2.375% 1/27	0.86	5	5	-2	0	1	T-6.625-02/15/27	204	1	1	-3	-2	-2	24	-0
TIPS 0.375% 1/27	0.86	5	5	-1	0	1	T-2.250-02/15/27	207	2	2	-3	-2	-2	20	-1
TIPS 0.375% 7/27	0.82	5	5	-1	0	1	T-2.375-05/15/27	211	2	2	-3	-2	-2	22	-1
TIPS 1.75% 1/28	0.87	4	4	-1	0	1	T-6.125-11/15/27	205	2	1	-3	-2	-2	24	-1
TIPS 0.5% 1/28	0.87	5	5	-1	0	1	T-2.750-02/15/28	207	2	1	-2	-2	-2	22	-1
TIPS 3.625% 4/28	0.88	4	4	-1	0	1	T-5.500-08/15/28	206	2	2	-3	-2	-2	22	-1
TIPS 2.5% 1/29	0.89	4	4	-1	0	1	T-5.250-02/15/29	206	2	2	-2	-2	-2	24	-1
TIPS 3.875% 4/29	0.91	4	4	-1	0	1	T-5.250-02/15/29	204	2	2	-2	-2	-2	25	-1
TIPS 3.375% 4/32	0.92	4	4	-1	0	1	T-5.375-02/15/31	204	2	2	-2	-1	-2	28	-1
TIPS 2.125% 2/40	0.94	2	2	-1	0	0	T-4.625-02/15/40	211	3	2	-1	-1	-1	24	-2
TIPS 2.125% 2/41	0.94	2	2	-1	0	0	T-4.750-02/15/41	212	2	2	-1	-1	-1	23	-2
TIPS 0.75% 2/42	0.95	2	2	0	0	0	T-3.125-02/15/42	212	2	2	-1	-1	-1	23	-2
TIPS 0.625% 2/43	0.95	2	2	0	0	0	T-3.125-02/15/43	213	2	2	-1	-1	-1	22	-2
TIPS 1.375% 2/44	0.96	2	2	0	0	0	T-3.625-02/15/44	213	2	2	-1	-1	-1	22	-2
TIPS 0.75% 2/45	0.96	2	2	0	0	0	T-2.500-02/15/45	213	2	2	-1	-1	-1	22	-2
TIPS 1% 2/46	0.96	2	2	0	0	0	T-2.500-02/15/46	213	2	1	-1	-1	-1	22	-1
TIPS 0.875% 2/47	0.96	2	2	0	0	0	T-3.000-02/15/47	213	2	1	-1	-1	-1	23	-2
TIPS 1% 2/48	0.96	2	2	0	0	0	T-3.000-02/15/48	213	1	1	-1	-1	-1	23	-1

Source: Citi Research, Bloomberg. As at 15:00 London time 13 September 2018.

Figure 75. EUR Inflation-linked Carry (based on forecasts above) – One week changes

Bond	RY (%)	Chg (bp)	Carry-adj chg	Carry: RY (bp)			Reference Conventional	BE (bp)	Chg (bp)	Carry-adj chg	Carry: BE (bp)			ZC Swap - BE Spread (bp)	Chg (bp)
				1 Oct	1 Nov	3 Dec					1 Oct	1 Nov	3 Dec		
Repo (%)				-0.36	-0.37	-0.36									
BUNDei20	-1.43	-7	-1	-13	-9	10	DBR 1/20	76	7	2	-12	-5	16	14	1
BUNDei23	-1.44	0	3	-4	-3	3	DBR 1/22	102	3	1	-4	-3	3	21	1
BUNDei26	-1.20	2	3	-3	-1	2	DBR 2/25	118	2	1	-3	-2	1	20	-1
BUNDei30	-0.90	4	5	-2	-1	2	DBR 1/30	132	1	0	-2	-2	0	21	-0
BUNDei46	-0.60	4	4	-1	0	1	DBR 8/46	163	1	1	-1	-1	0	25	-0
OATei20	-1.95	-11	-5	-12	-11	1	FRTR 4/20	144	12	6	-12	-10	4	12	-5
OATei21	-1.66	-3	1	-8	-7	4	FRTR 4/21	126	5	1	-8	-6	4	19	5
OATei22	-1.57	-1	2	-5	-4	3	FRTR 4/21	117	2	-0	-5	-4	3	33	2
OATei24	-1.29	0	2	-3	-2	3	FRTR 10/23	123	3	1	-4	-3	1	29	-0
OATei27	-0.94	0	1	-2	-1	3	FRTR 4/26	123	2	1	-3	-2	1	34	-1
OATei30	-0.65	0	1	-1	0	3	FRTR 5/30	147	2	1	-2	-2	0	17	-1
OATei32	-0.59	1	2	-1	0	3	FRTR 10/32	153	1	1	-2	-2	0	17	-0
OATei36	-0.37	1	2	-1	0	2	FRTR 5/36	160	1	0	-1	-1	0	18	0
OATei40	-0.32	1	2	-1	0	2	FRTR 4/41	167	1	-0	-1	-1	0	17	0
OATei47	-0.18	1	2	-1	0	1	FRTR 5/45	168	1	0	-1	-1	-1	26	0
OATI21	-1.55	-2	-0	-3	11	-1	FRTR 4/21	114	4	2	-3	11	-1	22	-1
OATI23	-1.32	0	1	-2	7	0	FRTR 10/23	126	3	2	-2	6	-1	15	-1
OATI25	-1.04	1	2	-1	6	1	FRTR 5/25	126	2	1	-2	5	-1	15	2
OATI28	-0.74	1	2	-1	4	1	FRTR 10/27	127	1	1	-1	3	-1	26	1
OATI29	-0.76	1	2	-1	4	1	FRTR 4/29	144	1	1	-1	3	-1	17	-0
BTPei21	0.30	-28	-26	-5	3	19	BTPS 9/21	112	5	1	-7	-5	4	26	-0
BTPei22	0.67	-23	-21	-3	4	17	BTPS 4/22	99	1	-1	-6	-4	4	33	3
BTPei May23	0.94	-22	-21	-2	4	14	BTPS 3/23	99	5	3	-4	-3	3	37	-2
BTPei Sep23	0.97	-20	-19	-2	4	14	BTPS 8/23	108	1	-1	-4	-3	2	34	2
BTPei24	1.17	-19	-18	-2	4	13	BTPS 9/24	119	3	1	-4	-3	2	26	0
BTPei26	1.40	-16	-15	-1	3	11	BTPS 3/26	116	3	2	-3	-3	1	34	-2
BTPei28	1.63	-16	-16	-1	3	9	BTPS 9/28	125	2	1	-2	-2	0	27	-1
BTPei32	1.73	-11	-11	-1	2	6	BTPS 3/32	125	0	-1	-2	-1	0	41	1
BTPei35	1.76	-10	-10	-1	2	6	BTPS 8/34	146	-3	-4	-2	-2	-1	28	4
BTPei41	2.08	-8	-8	0	2	5	BTPS 9/40	149	-0	-1	-1	-2	-1	36	1
SPGBEI21	-1.32	-4	-1	-6	-4	5	SPGB 7/21	127	5	1	-7	-5	3	12	3
SPGBEI23	-0.80	-2	-0	-3	-1	5	SPGB 7/23	124	3	1	-4	-3	2	20	2
SPGBEI24	-0.68	-3	-1	-3	-1	5	SPGB 10/24	137	3	1	-4	-3	1	9	2
SPGBEI27	-0.06	-1	-1	-2	0	5	SPGB 4/27	131	1	-0	-2	-2	1	23	2
SPGBEI30	0.25	-2	-1	-1	1	4	SPGB 7/30	141	1	0	-2	-2	0	21	1

Source: Citi Research, Bloomberg. As at 15:00 London time 13 September 2018.

Figure 76. UK Gilts Inflation-linked Carry (based on forecasts above) – One week changes

Bond	RY (%)	Chg (bp)	Carry-adj chg	Carry: RY (bp)			Reference Conventional	BE (bp)	Chg (bp)	Carry-adj chg	Carry: BE (bp)			ZC Swap - BE Spread (bp)	Chg (bp)
				1 Oct	1 Nov	3 Dec					1 Oct	1 Nov	3 Dec		
Repo (%)				0.70	0.71	0.71									
UKTi Nov19	-2.49	-1	3	-9	23	21	UKT 9/19	325	3	-1	-10	23	19	22	25
UKTi Nov22	-2.07	6	7	-2	8	8	UKT 3/22	296	1	0	-2	7	6	45	5
UKTi Mar24	-1.84	6	7	-1	6	6	UKT 3/25	301	-0	-1	-2	5	4	26	-6
UKTi Jul24	-1.83	7	7	0	1	2	UKT 3/25	300	-1	-1	0	0	0	45	1
UKTi Mar26	-1.72	7	7	-1	5	5	UKT 12/27	306	-1	-1	-1	4	3	26	-17
UKTi Nov27	-1.71	7	7	-1	4	4	UKT 12/27	305	-1	-1	-1	3	3	38	4
UKTi Aug28	-1.69	7	7	-1	4	4	UKT 12/27	303	-1	-1	-1	3	2	41	2
UKTi Mar29	-1.61	7	8	-1	3	4	UKT 12/30	316	-1	-1	-1	2	2	20	-2
UKTi Jul30	-1.60	7	7	0	1	1	UKT 12/30	314	-1	-1	0	0	-1	33	1
UKTi Nov32	-1.62	5	5	-1	3	3	UKT 6/32	325	2	1	-1	2	1	23	1
UKTi Mar34	-1.57	5	5	0	2	3	UKT 9/34	328	2	2	-1	1	1	16	-3
UKTi Jan35	-1.53	6	6	0	1	1	UKT 3/36	329	1	1	0	0	-1	19	1
UKTi Nov36	-1.56	5	5	0	2	2	UKT 3/36	331	2	2	-1	1	0	19	1
UKTi Nov37	-1.55	4	4	0	2	2	UKT 12/38	334	2	2	-1	1	1	16	1
UKTi Mar40	-1.54	5	5	0	2	2	UKT 12/40	336	1	1	-1	1	0	11	-1
UKTi Aug41	-1.53	4	5	0	2	2	UKT 12/40	336	2	2	-1	1	0	16	1
UKTi Nov42	-1.53	4	4	0	2	2	UKT 7/47	337	2	2	-1	1	1	14	1
UKTi Mar44	-1.50	4	4	0	1	2	UKT 7/47	334	2	2	0	1	1	13	2
UKTi Mar46	-1.48	4	5	0	1	2	UKT 1/45	335	2	2	-1	1	0	11	-1
UKTi Nov47	-1.48	4	4	0	1	2	UKT 12/46	333	2	2	-1	1	0	14	1
UKTi Aug48	-1.48	4	5	0	1	1	UKT 7/47	332	2	2	0	1	0	14	1
UKTi Mar50	-1.48	5	5	0	1	1	UKT 12/49	330	2	2	0	1	0	11	-1
UKTi Mar52	-1.48	4	4	0	1	1	UKT 7/52	328	2	2	0	1	0	12	-1
UKTi Nov55	-1.47	5	5	0	1	1	UKT 12/55	324	2	2	0	1	0	14	1
UKTi Nov56	-1.47	5	5	0	1	1	UKT 12/55	324	2	2	0	0	0	13	1
UKTi Mar58	-1.47	5	5	0	1	1	UKT 1/60	320	2	2	0	0	0	13	-1
UKTi Mar62	-1.48	5	5	0	1	1	UKT 1/60	321	2	2	0	0	0	10	-1
UKTi Nov65	-1.51	5	5	0	1	1	UKT 7/65	322	3	2	0	0	0	10	-0
UKTi Mar68	-1.52	5	5	0	1	1	UKT 7/68	324	3	2	0	0	0	7	-1

Source: Citi Research, Bloomberg. As at 15:00 London time 13 September 2018.

Prepared for Hansi Huang

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Appendix A-1

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