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Europe

Investment Grade Credit

European Banks

Discos, CMS and Fixed-Rate Tier 1 Prefs: Calculating the Sensitivities

With long-end $ rates having risen since November (despite QE), and our rates colleagues forecasting 30-year Treasuries and Bunds to reset higher over the coming year, we would be adding some positions in select discount perps and CMS Tier 1 versus selling expensive fixed-rate prefs.

Upside from rising rates: We model out the sensitivities of discount perps, CMS and fixed-rate Tier 1 to changes in rates and credit spreads. Even if rates do not rise, capital appreciation is limited in fixed-rate prefs, with many bonds anchored around par, given that they are callable on a quarterly basis.

Total return of discount perps and CMS looks attractive versus fixed-rate prefs, based on our rates colleagues' forecasts. For example, HSBC's discount perps and DPB's CMS Tier 1 have a better one-year total return than BNP's fixed-rate $ 6.25/6.5 prefs (even assuming 50bp of credit spread tightening in the prefs), with capital appreciation offsetting the lower amount of carry.

Low cash price instruments: Discount perps and CMS are among the lowest cash price instruments within banks' capital structures, giving potential upside from tenders and exchanges, as we have seen in the past. Equally, these instruments should also benefit from the ongoing improvement in financial fundamentals.

Selectively switching in discos and CMS: We are not advocating large-scale selling of fixed-rate prefs, and many of them are still our top picks in the sector, e.g., KBC € 8%, ING € 8%, CS $ 7.875%/8.25%. **We'd look at select switches out of expensive fixed-rate prefs into select discount perps and CMS.**

Trade Ideas

B/O	Ticker	Type	Ccy	Cpn	Price	YTP	Running yield
O	HSBC	UT2	$	0.61025	58.00	5.3%	1.1%
B	BNP	Tier 1	$	6.25	99.00	6.2%	6.3%
B	BNP	Tier 1	$	6.5	99.00	6.6%	6.6%
O	BACR	UT2	£	1.5	62.50	6.7%	2.4%
B	RBS	Tier 1	$	6.8	92.75	7.4%	7.3%
O	DPB	Tier 1	€	1.777	54.00	4.5%	3.3%
O	DPB	Tier 1	€	1.709	54.00	4.4%	3.2%
B	DB	Tier 1	€	6.15	100.75	6.2%	6.1%
O	BFCM	Tier 1	€	1.985	55.75	5.1%	3.6%
O	BFCM	Tier 1	€	1.695	55.75	5.1%	3.0%
B	BNP	Tier 1	€	4.875	83.00	6.0%	5.9%

Source: Bloomberg, Morgan Stanley Research

Discos, CMS and Fixed-Rate Tier 1 Prefs: Calculating the Sensitivities

We revisit discount perps and CMS in light of the recent uptick in long-end $ rates since November (around 50bp from trough to peak) and against the backdrop of the majority of fixed-rate retail Tier 1s trading at or above par (thus representing more of a carry play, rather than offering significant capital appreciation). In this report, we model the price sensitivities of discount perps, CMS Tier 1s and fixed-rate prefs to changes in long-end rates and credit spreads. Even with rates only increasing in line with our rates colleagues' expectations (well below the average seen since 2005), both discount perps and CMS Tier 1 offer attractive total returns, with capital appreciation more than offsetting the lower amount of carry. As such, we recommend selective switches out of fixed-rate Tier 1s into discount perps and CMS Tier 1s.

Trade Recommendations

As we show in our total return analysis below, we do not necessarily need a significant spike in rates to make floating-rate products attractive. If rates just rise as our interest rate colleagues expect (which remain well below their average – we look at the period from 2005), then there should be significant upside from principal appreciation (offsetting the relatively low carry). At the same time, there is also potentially some downside in fixed-rate Tier 1 from increases in rates (offsetting their carry) which is simply not priced in at the moment, in our view.

We are not suggesting large-scale portfolio switches out of fixed-rate products into floating-rate products (and, in reality, liquidity in the market would not permit this), but we do believe that it makes sense to selectively add exposure here in floating-rate products. **Our focus is mainly on expensive fixed-rate retail prefs with mid-range coupons (circa 6% or lower) that have limited upside from here; as long-end rates rise, pushing prices down, it will look increasingly attractive for the issuers to keep these instruments outstanding as cheap 'bail-inable' capital.** As fixed-rate retail Tier 1, there is clearly no reputational risk in not calling these securities. As such, we'd look at select switches out of certain fixed-rate Tier 1s into discount perps and CMS Tier 1, which would benefit from rising rates (therefore representing a good inflation hedge) and would offer significantly more capital appreciation. To be clear, we do not expect these to be called, although there is clearly LME upside.

Discount Perp Switches

In terms of $ discount perps, there is actually relatively little credit differentiation across names (in terms of cash price or YTP). As such, **we'd look at buying HSBC discount perps** e.g., GB0005903413 offered at 58, which implies a YTP of 5.3%. We would flag that this is mainly a play on rates, as HSBC has not undertaken any liability-management exercises (LME) to date. We'd either look to buy this outright or versus selling the BNP $ 6.25%/6.5% retail Tier 1s. Trading at around par and already callable, these bonds have little upside above par and, as we detail on page 5, they could have material downside from rises in long-end rates.

We'd also look to buy the Barclays £ discount perp (XS0015014615). This security offers slightly more carry than the average discount perp, as it has a coupon of +100bp and hence offers a much higher YTP of 6.7%. We'd also note that our rates colleagues forecast £ 30-year rates to rise by 70bp to 3.70% as at 1Q14. In addition, fresh CoCo issuance should support this security and we would not rule out LME, in light of Barclays managing its capital base. Once again, we'd look to buy this outright or on switch versus the RBS $ 6.8%, which looks expensive at current levels and is less likely to be included in any form of LME, as it is a tax-deductible, non-step with a high cash price (see *Our Broadest Review of Lloyds and RBS Tier 1s – Ever*, February 14, 2013).

Exhibit 1

Trade Recommendations: Discount Perps and CMS

B/O	ISIN	Ticker	Type	Ccy	Coupon	Coupon structure	Price	YTP (%)	Running yield (%)
O	GB0005903413	HSBC	UT2	USD	0.61025	L + 10	58.00	5.3%	1.1%
B	FR0010239368	BNP	Tier 1	USD	6.25	Fixed	99.00	6.2%	6.3%
B	FR0010477125	BNP	Tier 1	USD	6.5	Fixed	99.00	6.6%	6.6%
O	XS0015014615	BACR	UT2	GBP	1.5	L +100	62.50	6.7%	2.4%
B	XS0159056208	RBS	Tier 1	USD	6.8	Fixed	92.75	7.4%	7.3%
O	DE000A0D24Z1	DPB	Tier 1	EUR	1.777	CMS+12.5; Max=8%	54.00	4.5%	3.3%
O	DE000A0DEN75	DPB	Tier 1	EUR	1.709	CMS+2.5; Max=8%	54.00	4.4%	3.2%
B	DE000A0AA0X5	DB	Tier 1	EUR	6.15	Fixed	100.75	6.2%	6.1%
O	XS0212581564	BFCM	Tier 1	EUR	1.985	CMS+10; Max=8%	55.75	5.1%	3.6%
O	XS0207764712	BFCM	Tier 1	EUR	1.695	CMS+10; Max=8%	55.75	5.1%	3.0%
B	FR0010239319	BNP	Tier 1	EUR	4.875	Fixed	83.00	6.0%	5.9%

Source: Bloomberg, Morgan Stanley Research, Bloomberg

CMS Tier 1 Switches

The case for euro rates rising is perhaps less certain, given the macro environment in Europe. Note that practically all CMS are euro-denominated. We note that while our economists no longer expect a rate cut from the ECB, they note that it could instead tweak the collateral framework (see *Fiscal Dominance,* March 22, 2013). Offsetting this, to an extent, is the fact that the CMS Tier 1 have much better carry than discount perps, and so relatively less of the total return is from capital appreciation. In CMS, we'd look at the DPB CMS Tier 1s. As we detail in this note, there is clear upside from increases in rates and we like the low cash price, as it offers potential scope for LME. Against this, we'd look at selling the DB € 6.15% fixed-rate Tier 1, which just looks expensive to us at current levels (YTP: 6.2%), has no upside from here in terms of capital appreciation and, as it is trading around par, is unlikely to benefit from LME. In a similar vein, we'd also look to buy BFCM CMS Tier 1s. Once again, we see upside from rising rates and/or LME and, against this, we'd look to switch out of the BNP € 4.875% fixed-rate Tier 1s. While it has a relatively lower cash price, we have not seen any LME on this to date, and see limited upside from current levels.

What Are Discount Perps and CMS Tier 1?

We have previously published detailed notes on both discount perps (see *A Defensive $ Play – Discount Perps*, May 10, 2010) and CMS Tier 1 (see *CMS – Low-Cash Inflation Hedge with Tender Potential*, November 1, 2010), and we'd refer readers to these notes for full and detailed descriptions. Below we simply provide high-level overviews of both structures.

Discount Perps

Discount perps are perpetual securities with cumulative coupons and are therefore classified as UT2 under current rules (and we believe that they count as Tier 2 under CRD4/CRR1). They were first brought to market between 1984 and 1986, when some US$16 billion of almost exclusively USD-denominated bonds were issued, primarily by UK banks. They are callable on any interest payment date, but given the extremely low floating-rate coupon cost (the majority at libor+12.5-25bp with no step-ups) and that there was no expectation of call when these were issued, we have not seen any calls in this space. Note that there are a very limited number of discount perps with coupon floors. This sector initially came back into focus in November 2008 when Standard Chartered offered a cash tender for its discount perps at a 12.5 point premium to the market. Since then, we have seen in excess of 60% of the discount perp market offered some form of tender or exchange, as we can see in Appendices 3 and 4, where a significant number of securities show a reduced current notional compared to what was initially issued. Tender and exchange activity has been more limited recently, with the last tender of note being for the Standard Chartered £ discount perp at a 13.5 point premium in summer 2012.

CMS Tier 1

Vanilla CMS Tier 1 securities are normally structured as non-step Tier 1 securities, with the coupon linked to a constant-maturity swap, classically the 10-year swap rate. This means that the coupon resets normally every three months, based on the 10-year part of the curve plus a small margin (5-25bp). We'd note that these securities commonly have caps attached to the coupons (although these are generally set at high levels, e.g., 8%). These were mainly issued back in 2004/05 when rates and volatility were low. Investors were worried about rising rates and therefore looked to add exposure in a floating-rate format, fixing off the longer end of the curve as curves were steep. We'd also note that CMS Tier 1s have been issued in other formats, with coupons linked to 10-year government bonds (as opposed to swaps) and steepeners, where coupons will pay based on a multiple of the differential of the 2 and 10-year rate. For more details, see again *CMS – Low-Cash Inflation Hedge with Tender Potential*. In our work, we focus on the vanilla and government-linked CMS.

The universe of vanilla/government-linked bonds with CMS-linked structures is about 22 strong, with most of them euro-denominated. The unexpected flattening of the yield curve in early 2005 and increasingly leveraged structures reduced the appeal of CMS-linked instruments and, combined with very poor liquidity, many of the outstanding deals lost almost one-fifth of their value. The CMS new issuance market has not revived since then. As with discount perps, with a declining Tier 1 benefit under CRD IV and a focus on core Tier 1, we have also seen banks undertake select LME for these securities.

Exhibit 2

Comparison: Discount Perps versus CMS Tier 1 versus Fixed-Rate Tier 1 Prefs

	Discount perps	CMS Tier 1	Fixed-rate Tier 1 prefs
Structure	UT2, cumulative	Tier 1, normally non-cum	Tier 1, normally non-cum
Currency	Mainly $	Mainly €	$ and €
Benchmark	3-month rates	10-year rates	NA – fixed-rate
Call expectation	None	None	None (unless economic)
CRD IV treatment	Qualify as Tier 2 capital	Lose Tier 1 treatment under normal grandfathering. Expect reclassification as Tier 2	Lose Tier 1 treatment under normal grandfathering. Expect reclassification as Tier 2

Source: Morgan Stanley Research

Naturally, as a result of the way that the coupons set (from the 10-year part of the curve), given the current shape of the yield curve, the CMS Tier 1s will naturally have higher coupons and therefore higher running yields than discount perps. We detail the running yields of both products in the Appendices.

How Are Discount Perps and CMS Priced?

In discount perps and CMS Tier 1, carry is generally a lower driver of the valuation, with the real upside linked to increases in rates. With this in mind, we revisit how discount perps and CMS Tier 1s are valued.

Valuations Linked to 30-year Swaps

Both securities are basically priced as perpetual FRNs, given that there is no expectation of them being called; thus, as with any FRN, the expectation of where rates will set in the future is absolutely critical to the valuation. To price these securities, market convention to model the future cash flows is to use the 30-year swap curve. By definition, this gives the fixed-rate equivalent of where 3-month Libor is expected to reset every quarter for the next 30 years. Using the 30-year swap curve, you can use the YASN screen in Bloomberg (it is set up for the vast majority of securities) to calculate the implied yield to perpetuity ('YTP') of both discount perps and CMS (see Appendix 1 for more details). **We would highlight that the YTP does not represent the actual cost to the issuer nor the actual yield that the holder will actually receive, it is simply market convention for pricing these securities and providing a comparative YTP, so as to be able to compare them on an equivalent basis.** Note that it also permits comparison to fixed and fixed/floating Tier 1s on a YTP basis.

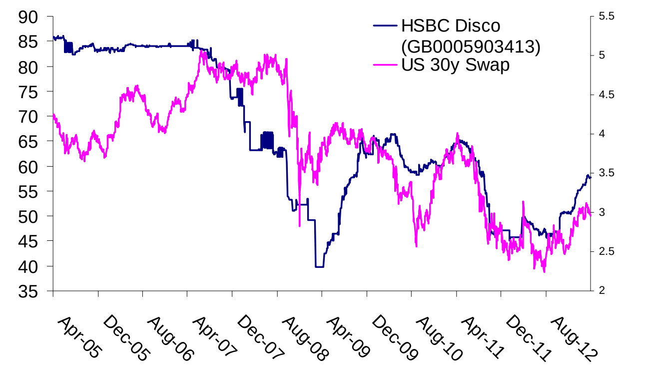
For discount perps, it makes perfect sense to use the 30-year swap rate, as the coupons reset based on 3-month LIBOR. For CMS Tier 1, the rationale is a little less clear, as the coupons reset based on the 10-year part of the curve. However, in the absence of a liquid measure of where the 10-year curve will set every three months for perpetuity/30 years, we use the 30-year swap curve as the next best proxy for long-duration swaps. While this is not a perfect reflection of where coupons will set for CMS, when taking into account the running yield as well, it gives us a basis to look at discount perps, fixed-rate Tier 1 and CMS Tier 1 on a broadly comparable basis.

Credit and Rates Play

There are essentially two key determinants of where these securities will price. First, as we highlight above, the cash price of the securities will rise/fall as a function of 30-year swap rates and we can see the correlation between the prices of the securities and long-end rates in Exhibit 3. We note that, pre-crisis, there was somewhat less of a correlation with the example HSBC security stuck at a cash price of around 85; however, post-2007, the correlation has been very close.

Exhibit 3

US 30-Year Swap Rate and HSBC Discount Perp Correlation



Source: Morgan Stanley Research, Bloomberg

Second, the instruments are also a credit play and to the extent that investors get more comfortable with a banks fundamental credit profile, credit spreads should tighten, leading prices higher (as would happen with any credit instrument). Further, as we noted above, banks have been very focused on Core Tier 1 and Core Equity Tier 1 capital ratios in recent years: with these securities being among the lowest cash price securities within a bank's capital structure, we have seen a significant number of tenders and exchanges, often with very generous premiums. In reality, it is hard to second-guess when and where tenders might happen and what might be the premium (if any). It is far easier to compare and contrast the impact of spread tightening and of rising (or falling) rates on the cash price of these securities.

The Rates Outlook

Below we detail the Morgan Stanley yield forecasts for both Treasuries and Bunds (see *Global Interest Rate Outlook: Spring Update*, March 22, 2013). Note that Morgan Stanley does not publish forecasts for swaps but we can adjust the Treasury and Bund forecasts into swaps by adjusting for swap spreads (we use the average swap spread over the last 12 months as a proxy). In $, our rates colleagues expect 30-year rates to rise; however, they believe that the extent of the rise will be tempered by heightened uncertainty in peripheral Europe and continued Fed purchases of Treasuries in the secondary market through 2013. In the euro area, our economists expects growth to pick up during 2013 and 2014, and as a base case no longer have a cut in ECB refi and deposit rates. We use these rate expectations adjusted for swap spreads in our price sensitivity analysis below.

Exhibit 4

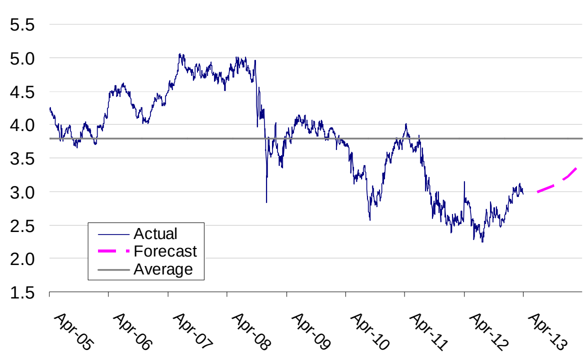
Morgan Stanley Base Case Yield Forecasts

%	30-year $	30-year Bunds	30-year gilts
2Q13	3.23	2.53	3.44
3Q13	3.29	2.73	3.57
4Q13	3.45	2.99	3.65
1Q14	3.66	3.09	3.70

Source: Morgan Stanley Research

Exhibit 5

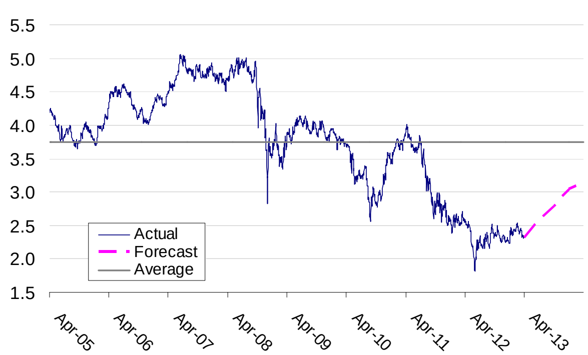
30-year US Swaps – History, Forecast and Average



Source: Morgan Stanley Research, Bloomberg; Note: Our rates colleagues do not have official forecasts for swap rates. To estimate the 30-year swap rates, we added the average 30-year swap spread (calculated over a 12-month period) to the Treasury forecast as a means of estimating the 30-year swap rate.

Exhibit 6

30-year Euro Swaps – History, Forecast and Average



Source: Morgan Stanley Research, Bloomberg; Note: Our rates colleagues do not have official forecasts for swap rates. To estimate the 30-year swap rates, we added the average 30-year swap spread (calculated over a 12-month period) to the Bund forecast as a means of estimating the 30-year swap rate.

Rates and Price Sensitivity

In Appendix 2, we run detailed calculations showing the sensitivity of discount perps, CMS and fixed-rate Tier 1 cash prices to changes in rates and credit spreads. We run a range of scenarios, with 30-year swap rates from 2.00% to 5.00% and assumed credit spreads from 200bp to 450bp. We'd make the following observations from looking at these tables:

Discount Perps/CMS Tier 1 Observations

- Both CMS and discount perps have a similar degree of sensitivity to movements in the 30-year swap curve. **At current levels, a 50bp rise in $ swaps would be worth around 3.6 points for discount perps, and a 50bp rise in € rates for CMS would be worth around 4.6 points.** Both discount perps and CMS have a very similar sensitivity to changes in credit spread.

Fixed-Rate Pref Observations

- Fixed-rate prefs could also have significant upside still, from either lower rates (which is unlikely on our rates colleagues' forecasts) or tighter credit spreads, which is more likely, given the ongoing improvement of bank balance sheets, increases in capital ratios, etc. However, we would caution that the sensitivities we show in Appendix 2 from our model are mechanical, and do not reflect the trading of prefs. **A significant proportion of fixed-rate prefs are already callable (having passed their first call date – see Appendices for details); hence, this restricts these securities from ever trading significantly above par, with bonds normally callable on a quarterly basis. In practice, this means that the upside for the BNP $ 6.25%, as an example, is really only around 102 at best.** (In reality, in our sensitivity charts, we could have simply overwritten any price above 102 with 102). Equally, these securities become much less likely to be called as rates rise and it becomes cheaper and cheaper for the issuer to leave the security outstanding as a form of 'bail-inable' capital.

- Even for fixed-rate prefs that have not come to call yet, their upside is limited by the first call date, as a bond that trades significantly above par clearly indicates that the bank should be able to refinance the security at a cheaper rate. However, for these securities, the high likelihood of call means that there is little downside from rising rates.

- **At current spread levels, a 50bp rise in $ rates would have about 8 points of downside on the BNP $ 6.25% and a 50bp rise in € rates would have about 5 points of downside on the BNP € 4.875%.** Higher-coupon fixed-rated prefs have a greater downside in terms of cash price to rising rates compared to lower coupon securities (simply because the coupons are bigger and hence suffer more from being discounted by higher rates).

- Given the bigger coupons, fixed-rate prefs have more upside from credit spread tightening. However, as above, many instruments' cash prices are capped by already being callable (irrespective of spread tightening). Given the low cash prices, floating rate instruments are not capped in the same way.

Overall, in the near term, rising rates may not have a significant impact on fixed-rate prefs, as rises in rates will likely be offset by tighter credit spreads as the balance sheet healing process continues, and should also be symptomatic of a better economic environment. **This means that bonds can stay priced at around par, but only really offer carry rather than any capital appreciation.** However, there will be a potential tipping point, when rates rises offset the benefit of spread tightening, and at this point, there is a risk that a significant number of investors (who mainly own fixed-rate Tier 1s for the carry) try to get out at the same time, potentially leading to a negative technical. This is in contrast to floating-rate products, which can benefit from both rising rates and spread tightening.

We are not saying that we are generically negative on fixed-rate Tier 1, and many of our recent recommendations have focused on this sector (see *Our Broadest Tier 1 Review – Ever*, February 1, 2013). We still believe that securities such as ING € 8%, KBC € 8% and CS $ 7.875/$ 8.25% will be called even in a rising rate environment: given the high face coupon and regulatory changes, they will be expensive for banks to leave outstanding, even as perpetual 'bail-inable' debt. Hence, there is significantly less (if any) rate sensitivity, as one can price these securities to a specific call. We are more concerned about 'mid-rate coupons', e.g., securities with coupons of say circa 6% or below (especially if trading around par). Many of these are tax-deductible and hence we see a much greater incentive for banks to leave these outstanding as perpetual bail-in debt (as there is no reputational risk) and, as such, these securities have much greater sensitivity to rising rates.

Total Return Analysis

Despite the sensitivities to rates, one of the key pushbacks we have received when we have highlighted discount perps and CMS Tier 1s in the past is the lack of running yield. However, **given our current rates outlook, on a one-year horizon, when looking at total return, the scope for principal appreciation significantly outweighs the lack of running yield.** To calculate total return, we take account of one year's worth of coupon and calculate the price impact based on the rates forecasts from our colleagues. In our initial calculation, we did not factor in the impact of any credit spread tightening.

However, as we note above, in reality, there would likely be some credit spread tightening, which would offset the initial impact of any rate rises. We did a second calculation, but to be conservative, we only assumed a spread tightening on the fixed-rate Tier 1 securities, assuming a 50bp tightening in both fixed-rate securities (a 14% tightening for the € 4.875% and 16% tightening for the $ 6.25). In the first scenario, as one would expect, assuming no spread tightening and rising rates, there is a significant outperformance of discount perps/CMS.

However, more interestingly, **even when including spread tightening for the fixed-rate Tier 1s, we still see an outperformance of the floating-rate instruments** (and remember we do not include any spread tightening for them).

For context, our choice of a 50bp tightening might appear a little arbitrary, but a 50bp tightening would leave the $ 6.5%/6.25% trading just below par and, hence, in reality is the best case that one could hope for. For context, an equivalent credit spread tightening for the HSBC and DPB discount perps would be worth around 6 and 8 points, respectively, although given the spread levels that these securities trade at, any spread tightening would likely be significantly less (so we do not take account of it for the purposes of this analysis).

Exhibit 7

One-year Total Return Comparison: Discount Perps and CMS versus Tier 1

Name	Type	Coupon	Current price	Rate impact	Total return
BNP	$ T1	6.25	99.5	-8.9	-2.7%
HSBC	$ UT2	0.61	57.0	4.1	8.3%
BNP	€ T1	4.875	83.2	-12	-8.6%
DPB	€ CMS T1	1.777	54.9	7	16.0%

Source: Morgan Stanley Research; The HSBC discount perp used is GB0005903413 and the DPB CMS Tier 1 is DE000A0D24Z1; Indicative levels.

Exhibit 8

One-year Total Return Comparison: Discount Perps and CMS versus Tier 1 with Spread Tightening

Name	Structure	Coupon	Current price	Rate impact	Spread impact	Total return
BNP	$ Tier 1	6.25	99.5	-8.9	7.5	4.9%
HSBC	$ UT2	0.61	57.0	4.1		8.3%
BNP	€ T1	4.875	83.2	-12	5.7	-1.7%
DPB	€ CMS T1	1.777	54.9	7		16.0%

Source: Morgan Stanley Research; The HSBC discount perp used is GB0005903413 and the DPB CMS Tier 1 is DE000A0D24Z1; Indicative levels.

For context, while the credit quality of the names we looked at is not 100% comparable, we still regard BNP as one of the highest-quality banks in Europe, and hence broadly comparable to HSBC. We follow a similar line of thinking with DPB, which is now almost wholly owned by Deutsche Bank. Equally, given the relatively lower degree of differentiation in cash price and similarities in coupons across most discount perps and CMS Tier 1, underlying credit quality plays a relatively smaller role in the analysis we lay out above. As such, total return analysis would show a similar type of return almost irrespective of the issuer that we had used for both discount perps and CMS.

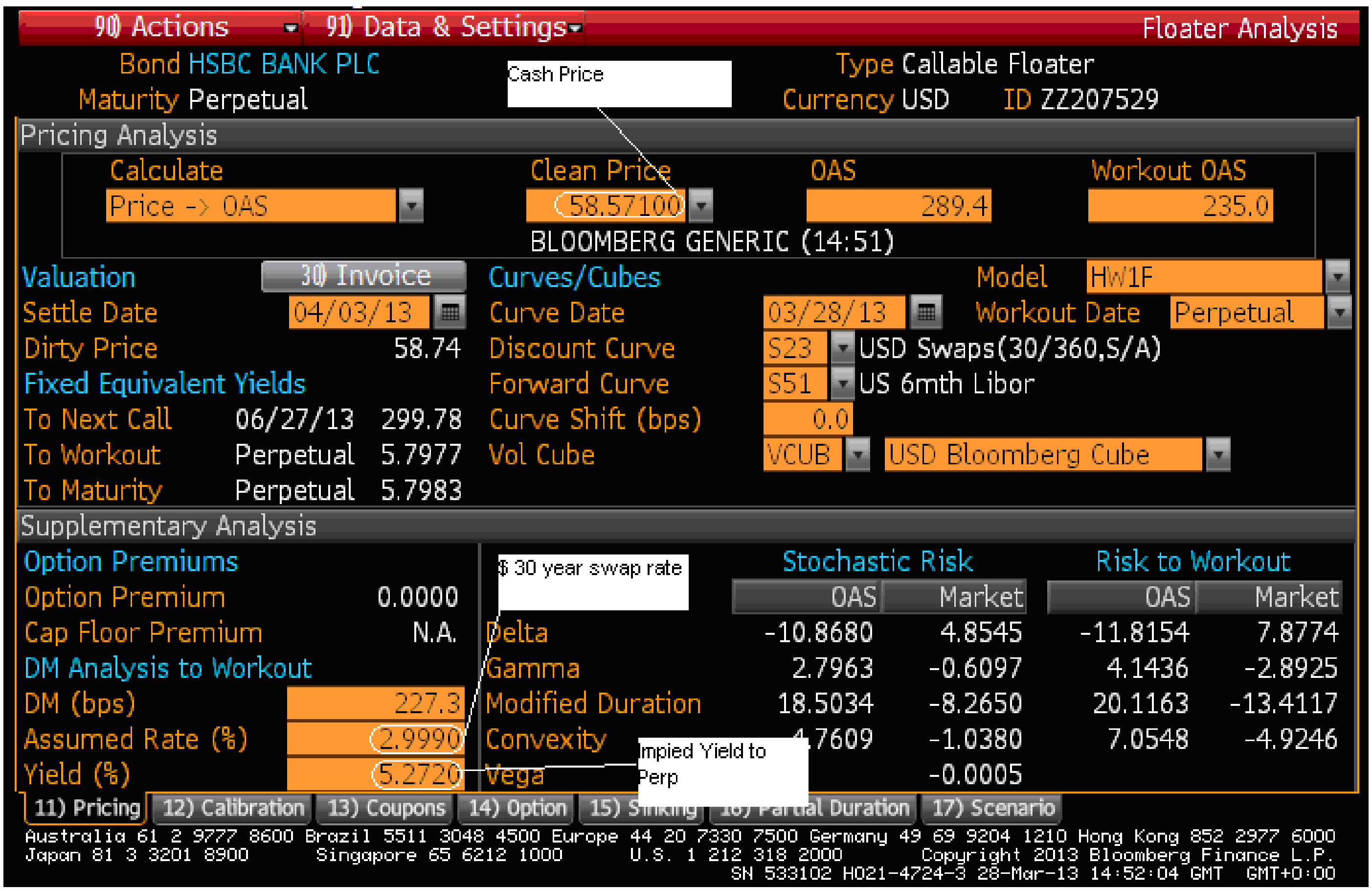
Risk Factors

Interest rates remain low or fall, meaning that there is no capital appreciation in discount perps and CMS; this would lead to underperformance compared to fixed-rate Tier 1s, given the lower amount of carry.

Rising rates lead to much greater credit spread tightening than we expect, hence the potential downside in fixed-rate prefs does not materialise.

Appendix 1: Pricing FRNs Using Bloomberg

We use the YASN screen in Bloomberg to price discount perps and CMS Tier 1s. YASN uses a discounted cash flow method to calculate yields/prices. There is no option to use the forward curve to model the cashflows, so we must input a single value for the reference rate ('assumed rate'), which is then added to the margin to arrive at the cash flow for every future payment. The Bloomberg default is to take the current fix of the reference rate, which is obviously unrepresentative of the true future cash flows. Market practice is instead to use the 30-year swap rate (which is, by definition, a single fixed rate which incorporates expectations of future rates) to proxy for the shape of the yield curve. For example, for the HSBC security (GB0005903413) illustrated below, we enter the 30-year swap rate (2.99%) in the field 'assumed rate'. Entering the price (58.571) then returns the implied yield to perpetuity (5.3%). Note that a further convention here is that the YTP is approximated by calculating a yield to maturity in 2049, this being the longest maturity Bloomberg can model.



Source: Bloomberg

Appendix 2: Modeling the Price Sensitivity

We model the price sensitivity of a discount perp, CMS and a fixed-rate Tier 1 to changes in 30-year swap rates and changes in credit spreads. The examples that we show for discount perps and CMS should be largely representative for all discount perps and CMS, as the margins on the securities are all very low (12.5-25bp for discount perps and 5-25bp for CMS) and, hence, prices will be quite uniformly driven by the relevant YTP and long-end rate. We also show the impact on fixed-rate prefs of changes in interest rates and credit spreads for context. However, unlike CMS and discount perps, the actual face coupon is a much more important driver, with higher-coupon fixed-rate securities having more downside (in terms of cash price) than lower-coupon securities.

What Is Perpetuity?

You can use the Bloomberg YASN screen to back out the implied prices for various levels of 30-year rates and different credit spreads; however, this is quite a manual process and not particularly efficient. To get around this, we calculate the implied prices for various different rate environments and spreads in Excel. This follows the same logic as Bloomberg but with one exception. Our Excel modeling prices the securities to perpetuity, whereas Bloomberg only calculates them to 2049 and assumes that the principal is repaid at this date. This makes very little difference in most scenarios, with the exception of where 30-year rates are very low or where credit spreads are very tight.

The reason why this makes a meaningful difference is because the discount rate is very low and hence the present value of coupons paid beyond 2049 (which Bloomberg does not take account of) becomes much more valuable. Note that for environments where yields (i.e., swap rates + credit spread) are above 4.5%, the pricing differential is small (less than 2 points for the BNP € 4.875% Tier 1). However, for yields below 4.5% (the top four squares in the pricing matrices we show overleaf), the difference is more meaningful, e.g., around 11 points for the BNP € 4.875% Tier 1, with our numbers being higher than Bloomberg. In reality, this differential should not matter particularly as at current swap levels, e.g., 30-year $ swaps at ~3.00%, a 4.5% yield implies a spread of only 150bp for deeply subordinated capital notes.

The differential created between our modeling and BBG should be manageable as it only occurs in pricing environments that are unlikely to occur, e.g., very low spreads and very, very low rates. Note that this is not an issue for the FRN, as the coupons that fall due after 2049 in low rate environments are very small and, hence, the present value of them is also very small, leading to a limited pricing differential.

Reading the Charts

In the first example overleaf, we lay out the sensitivity of an HSBC discount perp (GB0005903413) for changes in both credit spread and 30-year swap rates. The simple way to read this chart is that if you take the credit spread and add the 30-year swap spread, this gives the implied YTP. So, for example, with $ swap spreads at 3% and the credit spread around 250bp, this implies that these securities with a YTP of around 5.5% are implying a cash price of around 56.4, as highlighted by the intersection of the yellow cross in the chart.

In the table entitled *Cash price impact: Changes in Swaps*, this simply shows the change in the cash price of the bond for each 50bp increase in 30 year swaps e.g. at a credit spread of 150bp, a change in 30 year swap rates from 2.00% to 2.5% would lead to a 5 point increase in the cash price of the bond. In the table entitled *Cash price impact: Changes in swap spread*, this shows the change in cash price for a change in credit spread, e.g., if credit spreads were to go from 200bp to 150bp, then at a 30-year swap rate of 2.00%, this would lead to a 7.5 increase in the cash price of the bond.

Exhibit 9

HSBC $ Discount Perp Price Sensitivity (GB0005903413)

Credit Spread

30 yr swap rate	58.69%	1.50%	2.00%	2.50%	3.0%	3.5%	4.0%
	2.00%	60.0%	52.5%	46.7%	42.0%	38.2%	35.0%
	2.50%	65.0%	57.8%	52.0%	47.3%	43.3%	40.0%
	3.00%	68.9%	62.0%	56.4%	51.7%	47.7%	44.3%
	3.50%	72.0%	65.5%	60.0%	55.4%	51.4%	48.0%
	4.00%	74.5%	68.3%	63.1%	58.6%	54.7%	51.3%
	4.50%	76.7%	70.8%	65.7%	61.3%	57.5%	54.1%
	5.00%	78.5%	72.9%	68.0%	63.8%	60.0%	56.7%

Cash price Impact: Changes in 30 year swaps

2 to 2.5%	5.0%	5.3%	5.3%	5.3%	5.2%	5.0%
2.5 to 3%	3.9%	4.2%	4.4%	4.4%	4.4%	4.3%
3 to 3.5%	3.1%	3.5%	3.6%	3.7%	3.7%	3.7%
3.5 to 4%	2.5%	2.9%	3.1%	3.2%	3.2%	3.2%
4 to 4.5%	2.1%	2.4%	2.6%	2.8%	2.8%	2.9%
4.5 to 5%	1.8%	2.1%	2.3%	2.4%	2.5%	2.5%

Cash price Impact: Changes in credit spread

2.0- 1.5%	2.5-2.0%	3.0-2.5%	3.5-3.0%	4.0-3.5%
7.5%	5.8%	4.7%	3.8%	3.2%
7.2%	5.8%	4.7%	3.9%	3.3%
6.9%	5.6%	4.7%	4.0%	3.4%
6.5%	5.5%	4.6%	4.0%	3.4%
6.2%	5.3%	4.5%	3.9%	3.4%
5.9%	5.1%	4.4%	3.8%	3.4%
5.6%	4.9%	4.3%	3.8%	3.3%

Source: Morgan Stanley Research, Bloomberg

Exhibit 10

DPB € CMS Price Sensitivity (DE000A0D24Z1)

Credit Spread

30 yr swap rate	54.82%	1.50%	2.00%	2.50%	3.0%	3.5%	4.0%
	2.00%	60.7%	53.1%	47.2%	42.5%	38.6%	35.4%
	2.50%	65.6%	58.3%	52.5%	47.7%	43.8%	40.4%
	3.00%	69.4%	62.5%	56.8%	52.1%	48.1%	44.6%
	3.50%	72.5%	65.9%	60.4%	55.8%	51.8%	48.3%
	4.00%	75.0%	68.8%	63.5%	58.9%	55.0%	51.6%
	4.50%	77.1%	71.2%	66.1%	61.7%	57.8%	54.4%
	5.00%	78.8%	73.2%	68.3%	64.1%	60.3%	56.9%

Cash price Impact: Changes in 30 year swaps

2 to 2.5%	4.9%	5.2%	5.3%	5.2%	5.1%	5.0%
2.5 to 3%	3.8%	4.2%	4.3%	4.4%	4.3%	4.3%
3 to 3.5%	3.1%	3.4%	3.6%	3.7%	3.7%	3.7%
3.5 to 4%	2.5%	2.8%	3.0%	3.2%	3.2%	3.2%
4 to 4.5%	2.1%	2.4%	2.6%	2.7%	2.8%	2.8%
4.5 to 5%	1.8%	2.1%	2.3%	2.4%	2.5%	2.5%

Cash price Impact: Changes in credit spread

2.0- 1.5%	2.5-2.0%	3.0-2.5%	3.5-3.0%	4.0-3.5%
7.6%	5.9%	4.7%	3.9%	3.2%
7.3%	5.8%	4.8%	4.0%	3.4%
6.9%	5.7%	4.7%	4.0%	3.4%
6.6%	5.5%	4.6%	4.0%	3.5%
6.3%	5.3%	4.5%	3.9%	3.4%
5.9%	5.1%	4.4%	3.9%	3.4%
5.6%	4.9%	4.3%	3.8%	3.3%

Source: Morgan Stanley Research, Bloomberg; Note that while CMS Tier 1s commonly have caps, they are not relevant given that we only show interest rates going to 5% and caps normally kick in after this.

Exhibit 11

BNP $ 6.25 Fixed-Rate Tier 1 Price Sensitivity (FR0010239368)

Credit Spread

30 yr swap rate	100.3%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
	2.0%	178.6%	156.3%	138.9%	125.0%	113.6%	104.2%	96.2%
	2.5%	156.3%	138.9%	125.0%	113.6%	104.2%	96.2%	89.3%
	3.0%	138.9%	125.0%	113.6%	104.2%	96.2%	89.3%	83.3%
	3.5%	125.0%	113.6%	104.2%	96.2%	89.3%	83.3%	78.1%
	4.0%	113.6%	104.2%	96.2%	89.3%	83.3%	78.1%	73.5%
	4.5%	104.2%	96.2%	89.3%	83.3%	78.1%	73.5%	69.4%
	5.0%	96.2%	89.3%	83.3%	78.1%	73.5%	69.4%	65.8%

Cash price Impact: Changes in 30 year swaps

2 to 2.5%	-22.3%	-17.4%	-13.9%	-11.4%	-9.5%	-8.0%
2.5 to 3%	-17.4%	-13.9%	-11.4%	-9.5%	-8.0%	-6.9%
3 to 3.5%	-13.9%	-11.4%	-9.5%	-8.0%	-6.9%	-6.0%
3.5 to 4%	-11.4%	-9.5%	-8.0%	-6.9%	-6.0%	-5.2%
4 to 4.5%	-9.5%	-8.0%	-6.9%	-6.0%	-5.2%	-4.6%
4.5 to 5%	-8.0%	-6.9%	-6.0%	-5.2%	-4.6%	-4.1%

Cash price Impact: Changes in credit spread

2.0- 1.5%	2.5-2.0%	3.0-2.5%	3.5-3.0%	4.0-3.5%
22.3%	17.4%	13.9%	11.4%	9.5%
17.4%	13.9%	11.4%	9.5%	8.0%
13.9%	11.4%	9.5%	8.0%	6.9%
11.4%	9.5%	8.0%	6.9%	6.0%
9.5%	8.0%	6.9%	6.0%	5.2%
8.0%	6.9%	6.0%	5.2%	4.6%
6.9%	6.0%	5.2%	4.6%	4.1%

Source: Morgan Stanley Research, Bloomberg

Exhibit 12

BNP € 4.875 Fixed-Rate Tier 1 Price Sensitivity (FR0010239319)

Credit Spread

30 yr swap rate	82.5%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
	2.0%	139.3%	121.9%	108.3%	97.5%	88.6%	81.3%	75.0%
	2.5%	121.9%	108.3%	97.5%	88.6%	81.3%	75.0%	69.6%
	3.0%	108.3%	97.5%	88.6%	81.3%	75.0%	69.6%	65.0%
	3.5%	97.5%	88.6%	81.3%	75.0%	69.6%	65.0%	60.9%
	4.0%	88.6%	81.3%	75.0%	69.6%	65.0%	60.9%	57.4%
	4.5%	81.3%	75.0%	69.6%	65.0%	60.9%	57.4%	54.2%
	5.0%	75.0%	69.6%	65.0%	60.9%	57.4%	54.2%	51.3%

Cash price Impact: Changes in 30 year swaps

2 to 2.5%	-17.4%	-13.5%	-10.8%	-8.9%	-7.4%	-6.3%
2.5 to 3%	-13.5%	-10.8%	-8.9%	-7.4%	-6.3%	-5.4%
3 to 3.5%	-10.8%	-8.9%	-7.4%	-6.3%	-5.4%	-4.6%
3.5 to 4%	-8.9%	-7.4%	-6.3%	-5.4%	-4.6%	-4.1%
4 to 4.5%	-7.4%	-6.3%	-5.4%	-4.6%	-4.1%	-3.6%
4.5 to 5%	-6.3%	-5.4%	-4.6%	-4.1%	-3.6%	-3.2%

Cash price Impact: Changes in credit spread

2.0- 1.5%	2.5-2.0%	3.0-2.5%	3.5-3.0%	4.0-3.5%
17.4%	13.5%	10.8%	8.9%	7.4%
13.5%	10.8%	8.9%	7.4%	6.3%
10.8%	8.9%	7.4%	6.3%	5.4%
8.9%	7.4%	6.3%	5.4%	4.6%
7.4%	6.3%	5.4%	4.6%	4.1%
6.3%	5.4%	4.6%	4.1%	3.6%
5.4%	4.6%	4.1%	3.6%	3.2%

Source: Morgan Stanley Research, Bloomberg

Appendix 3: Traded European Bank Discount Perps

Ticker	ISIN	Coupon	Rate	Ccy	Amt issued (m)	Amt o/s (m)	Issue year	Mid	YTP	Running yield
BACR	GB0000784164	0.75	6m Libor + 25bp	USD	600	215	1984	55.25	5.7%	1.4%
BACR	GB0000777705	0.6925	6m Libid + 25bp	USD	869	483	1986	54.86	5.6%	1.3%
BACR	GB0000779529	0.6875	6m Limean + 25bp	USD	600	403	1985	53.75	5.9%	1.3%
BACR	XS0015014615	1.5	3m Libor + 100bp	GBP	200	145	1989	61.63	6.8%	2.4%
BNP	FR0008131403	0.5174	6m Libor + 7.5bp	USD	500	274	1986	55.00	5.3%	0.9%
CMZB	GB0004955547	1	6m Libor + 37.5bp	USD	225	225	1985	44.06	7.5%	2.3%
CS	GB0043378560	0.4061	3m Libid +25bp	USD	150	58	1986	61.25	5.2%	0.7%
DNBNO	GB0040940875	0.625	6m Libor + 12.5bp	USD	200	200	1986	54.11	5.7%	1.2%
DNBNO	GB0042636166	0.6069	6m Libor + 15bp	USD	300	200	1986	53.00	5.8%	1.1%
DNBNO	LU0001344653	0.5625	3m Libor + 25bp	USD	150	150	1985	54.50	5.9%	1.0%
HSBC	GB0004355490	0.5	3m Limean + 18.75bp	USD	400	400	1986	58.25	5.1%	0.9%
HSBC	GB0005902332	0.75	6m Libor + 25bp	USD	750	750	1985	57.00	5.6%	1.3%
HSBC	XS0015190423	0.75	6m Libor + 25bp	USD	500	500	1985	60.18	5.3%	1.2%
HSBC	GB0004355383	5	3m Limean + 25bp; MIN=5%	USD	400	400	1985	100.75	5.0%	5.0%
HSBC	GB0005903413	0.61025	6m Libor + 10bp	USD	300	300	1986	57.50	5.3%	1.1%
HSBC	GB0004355276	5	6m Libor + 25bp; MIN=5%	USD	400	400	1985	100.75	5.0%	5.0%
LLOYDS	GB0005232391	0.5715	6m Libor + 10bp	USD	600	359	1986	51.00	6.1%	1.1%
LLOYDS	GB0005205751	0.4741	3m Libor + 18.75bp	USD	500	280	1985	49.50	6.4%	1.0%
LLOYDS	GB0005224307	0.75	6m Libor + 25bp	USD	750	267	1985	51.50	6.2%	1.5%
LLOYDS	GB0000765403	0.8125	6m Limean + 25bp	USD	250	180	1985	50.75	6.3%	1.6%
NDASS	GB0001961928	0.7105	6m Libor + 18.75bp	USD	200	200	1986	54.29	5.8%	1.3%
RBS	GB0006267180	0.6875	6m Limean + 25bp	USD	500	229	1985	50.75	6.4%	1.4%
RBS	GB0006267073	0.78	6m Limean + 25bp	USD	500	193	1985	50.75	6.4%	1.5%
RBS	LU0001547172	0.5625	3m Libid + 25bp	USD	500	285	1985	50.75	6.4%	1.1%
RBS	GB0007547507	0.6875	6m Limean + 25bp	USD	350	107	1985	50.75	6.4%	1.4%
ROTH	GB0047524268	0.75	6m Libor + 25bp	USD	200	200	1986	42.50	7.5%	1.8%
SOCGEN	FR0008202550	0.603	6m Libor + 7.5bp	USD	500	248	1986	54.25	5.6%	1.1%
STANLN	GB0008389008	0.75	3m Libor + 18.75bp	GBP	150	31	1985	56.46	5.3%	1.3%

Source: Bloomberg; Morgan Stanley Research; Indicative prices.

Appendix 4: Vanilla/Government-Linked CMS Tier 1s

Ticker	ISIN	Coupon	Structure	Ccy	First call date	Amt issued (m)	Amt o/s (m)	Mid	YTP	Running yield
ACAFP	FR0010161026	1.916	CMS10+2.5; 7.75%	EUR	04/02/2015	600	371	61.08	61.0	4.60%
BFCM	XS0212581564	1.985	CMS10+10; 8%	EUR	25/02/2015	250	250	55.40	55.6	5.10%
BFCM	XS0207764712	1.695	CMS10+10; 8%	EUR	15/12/2014	750	750	55.39	55.6	5.10%
BPCEGP	FR0010101949	2.22	CMT10+30; 9%	USD	30/12/2010	200	200	63.25	65.3	5.10%
CCNORD	FR0010128835	1.829	CMS+17.5; 8%	EUR	18/11/2014	150	150	53.31	53.4	4.70%
CMARK	FR0010096826	1.771	CMS+10; 8%	EUR	05/07/2014	250	115	53.15	53.4	4.70%
DPB	DE000A0DEN75	1.709	CMS10+2.5; 8%	EUR	02/12/2010	300	300	54.00	53.9	4.40%
DPB	DE000A0D24Z1	1.777	CMS+12.5; 8%	EUR	07/06/2011	300	300	54.00	54.0	4.50%
EFGBNK	XS0204324890	2.096	CMS10+25; 8%	EUR	30/04/2010	400	13	59.50	59.5	4.30%
ERSTBK	XS0188305741	1.797	CMS10+10; 9%	EUR	24/12/2010	275	132	53.05	52.9	5.40%
INTNED	NL0000116127	1.8	DSL10+10; 9%	EUR	30/06/2014	1000	563	57.74	57.8	4.40%
INTNED	NL0000113587	2.2	DSL10+50	EUR	30/06/2013	750	432	60.10	60.3	4.60%
JYBC	XS0212590557	1.87	CMS+15; 8%	EUR	16/09/2015	100	77	53.53	53.6	5.40%
JYBC	XS0194983366	1.821	CMS+15; 9%	EUR	05/07/2014	125	98	53.60	53.7	5.40%
NDASS	XS0200688256	1.813	CMS10+5; 8%	EUR	17/03/2011	500	500	64.19	64.0	4.30%
ROTH	XS0197703118	2.61	TEC10+35; 9%	EUR	05/08/2014	150	150	56.32	56.4	4.70%
RZB	XS0193631040	1.695	CMS10+10; 9%	EUR	15/12/2010	200	91	51.13	51.1	4.70%
SAMBNK	XS0202776299	2.41	TEC10+30; 8.5%	EUR	13/10/2014	100	100	56.41	57.5	5.20%
SANTAN	XS0202197694	1.703	CMS+5; 8%	EUR	30/09/2009	300	165	53.67	53.9	5.20%

Source: Bloomberg; Morgan Stanley Research; Indicative prices.

Appendix 5: $ and € Fixed Rate Prefs

Ticker	Coupon	Next call	Amt issued (m)	Amt o/s (m)	Steps	Mid	YTP	Running yield	ISIN
USD									
ACAFP	7	30-Jul-13	1,500	1,500	-	97.25	7.3	7.2%	XS0161441000
ACAFP	7	30-Jul-13	550	550	-	97.00	7.3	7.2%	XS0173838847
ACAFP	7.375	19-Oct-13	500	500	-	99.75	7.4	7.4%	FR0010533554
ACAFP	9.75	26-Dec-14	1,350	1,350	-	106.88	9.1	9.1%	FR0010772244
BNP	6.25	17-Oct-13	400	400	-	98.80	6.2	6.3%	FR0010239368
BNP	6.5	6-Jun-13	600	600	-	98.75	6.6	6.6%	FR0010477125
BPCEGP	6.75	27-Jul-13	300	300	-	98.25	6.9	6.9%	FR0010279208
BPCEGP	13	30-Sep-15	134	134	-	113.75	11.1	11.4%	FR0010777532
CS	7.875	12-Dec-15	1,500	1,500	-	108.85	7.2	7.2%	XS0531067659
CS	8.25	27-Dec-13	1,500	1,500	-	104.33	7.9	7.9%	XS0371612762
HSHN	7.25	30-Jun-13	500	500	-	19.00	32.8*	0.0%	XS0221141400
HSHN	8	30-Jun-13	300	300	-	19.00	35.9*	0.0%	XS0159207850
KNFP	9	16-Apr-13	300	171	-	100.25	-3.7	9.0%	FR0010607747
LLOYDS	6.85	23-Jun-13	1,000	1,000	-	95.50	7.3	7.2%	XS0165483164
LLOYDS	6.9	22-May-13	1,000	343	-	99.25	7.0	7.0%	XS0156372343
LLOYDS	7.875	29-Nov-13	1,250	424	-	101.75	7.7	7.7%	XS0406095041
MQGAU	8.375	2-Dec-15	400	400	-	105.50	7.9	7.9%	XS0562354422
NAB	8	24-Sep-16	600	600	UST + 494	112.16	7.4	7.1%	XS0347918723
NDASS	8.375	25-Mar-15	1,000	1,000	UST+ 598.5	109.05	8.2	7.7%	XS0453319039
NDB	10.25	30-Jun-15	500	500	UST + 896	100.00	10.9	10.3%	XS0456513711
RABOBK	7.375	24-Mar-14	225	225	-	105.25	7.0	7.0%	XS0387971152
RABOBK	8.375	26-Jul-16	2,000	2,000	UST + 642.5	108.60	8.6	7.7%	XS0583302996
RABOBK	8.4	29-Jun-17	2,000	2,000	UST+ 749	108.56	9.3	7.7%	XS0703303262
RBS	6.8	30-Jun-13	750	486	-	93.25	7.4	7.3%	XS0159056208
SEK	5.4	27-Jun-13	200	200	-	98.00	5.6	5.5%	XS0170906233
SOCGEN	8.75	7-Apr-15	1,000	1,000	-	105.88	8.2	8.3%	XS0454569863
STANLN	8.125	27-Nov-13	925	925	-	103.50	7.8	7.9%	XS0365481935
STANLN	9.5	24-Dec-14	1,500	1,500	UST+ 678	112.00	8.7	8.5%	XS0347919457
WESTLB	8	30-Jun-13	300	300	-	3.00	-	0.0%	XS0216711340
EUR									
ACAFP	6	30-Jul-13	550	550	-	90.94	6.8	6.6%	NL0000113868
BNP	4.875	17-Oct-13	1,000	1,000	-	82.87	6.0	5.9%	FR0010239319
BPCEGP	9.25	22-Apr-15	750	750	-	104.79	8.8	8.8%	FR0010814558
BPCEGP	9	17-Mar-15	1,000	818	L + 653.3	105.64	8.4	8.5%	FR0010871269
DB	6.15	2-Jun-13	300	300	-	101.05	6.2	6.1%	DE000A0AA0X5
DB	8	15-May-18	1,000	1,000	-	111.14	7.1	7.2%	DE000A0TU305
DB	9.5	31-Mar-15	1,300	1,300	-	109.66	8.6	8.7%	DE000A1ALVC5
ERSTBK	5.25	23-Sep-13	200	110	-	82.29	6.5	6.4%	XS0215338152
HESLAN	5.5	30-Jun-13	250	250	-	80.79	7.0	6.8%	DE000A0E4657
HESLAN	5.75	30-Jun-13	250	250	-	83.26	7.0	6.9%	DE000A0G18M4
HSHN	7.4075	30-Jun-14	500	500	L + 215	19.0	21.7*	0.0%	XS0142391894
HSHN	7.5	30-Jun-13	500	500	-	19.0	35.0*	0.0%	DE0009842542
INTNED	8	18-Apr-13	1,500	1,500	-	101.94	7.8	7.8%	XS0356687219
KBC	8	14-May-13	1,250	1,250	-	101.47	7.9	7.9%	BE0934378747
LLOYDS	7.875	29-Nov-13	500	173	-	100.66	7.8	7.8%	XS0406095637
NDB	5.625	30-Jun-13	550	550	-	65.31	8.8	8.6%	DE000A0EUBN9
NYKRE	9	1-Apr-15	900	900	MS + 615	109.66	7.9	8.2%	XS0347918640
RBS	5.25	30-Jun-13	1,250	785	-	71.87	7.5	7.3%	DE000A0E6C37
RBS	5.5	30-Jun-13	1,250	1,250	-	73.56	7.7	7.5%	XS0205935470
SANTAN	5.75	8-Jul-13	200	159	-	87.30	6.9	6.6%	XS0202774245
SEB	9.25	31-Mar-15	500	500	MS + 640	109.85	8.1	8.4%	XS0454821462
WESTLB	6	30-Jun-13	240	240	-	3.00	-	0.0%	DE000A0D2FH1

Source: Bloomberg; Morgan Stanley Research; Indicative prices; *Stressed yield for missing coupons on account of the EC ban – assuming HSH resumes paying coupons in 2014.

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Total	**2,853**		**1022**		

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