Exploring and integrating alternative investment opportunities in the persistently low rate environment.
CONTENTS
GENERATING RETURNS IN A LOW RATE ENVIRONMENT

SECTION 1
MEASURING RISK & LIQUIDITY BOUNDARIES

1.1 WHITE PAPER ................................................................. 5
Low-risk anomalies in global fixed income
  • Raul Leote De Carvalho, Head of Quantitative Research and Investment Solutions, BNP Paribas Investment Partners

1.2 INTERVIEW ................................................................. 7
How ‘secure’ are securitised solutions?
  Interviewer:
  • Jessica McGhie, Senior Publishing & Strategy Manager, Clear Path Analysis
  Interviewee:
  • John Carey, U.S. Head of Securitised Products, BNP Paribas Investment Partners
  • Stéphane Blanchoz, Chief Investment Officer- Alternative Fixed Income, BNP Paribas Investment Partners

SECTION 2
ENHANCING ASSET TRANCHEs

2.1 ROUNDTABLE .............................................................. 11
What role can alternative debt play in generating return in the current low yield environment?
  Moderator:
  • Noel Hillmann, Managing Director, Clear Path Analysis
  Panel:
  • Stéphane Blanchoz, Chief Investment Officer- Alternative Fixed Income, BNP Paribas Investment Partners
  • Marieke van Kamp, Head of Real Estate & Alternatives, NN Group (ING Insurance Benelux)
  • Skip McMullan, Trustee, Pi Consulting, Trustee Board Director, London Pension Fund Authority (LPFA) & Director, Bank of America Merrill Lynch UK Pension Plan

2.2 INTERVIEW .............................................................. 15
Exploring the investment opportunities in illiquid assets
  Interviewer:
  • Jessica McGhie, Senior Publisher & Strategy Manager, Clear Path Analysis
  Interviewee:
  • Susan Martin, Chief Executive, London Pensions Fund Authority (LPFA)

2.3 INTERVIEW .............................................................. 17
Utilising structured credit in your search for yield
  Interviewer:
  • Jessica McGhie, Senior Publisher & Strategy Manager, Clear Path Analysis
  Interviewee:
  • Mascha Canio, Head of Structured Credit, PGGM

John Carey
U.S. Head of Securitised Products, BNP Paribas Investment Partners

Marieke van Kamp
Head of Real Estate & Alternatives, NN Group (ING Insurance Benelux)

Susan Martin
Chief Executive, London Pensions Fund Authority (LPFA)

Raul Leote De Carvalho
Head of Quantitative Research and Investment Solutions, BNP Paribas Investment Partners

Skip McMullan
Trustee, Pi Consulting, Trustee Board Director, London Pension Fund Authority (LPFA) & Director, Bank of America Merrill Lynch UK Pension Plan

Stéphane Blanchoz
Chief Investment Officer- Alternative Fixed Income, BNP Paribas Investment Partners

Susan Martin
Chief Executive, London Pensions Fund Authority (LPFA)

Marieke van Kamp
Head of Real Estate & Alternatives, NN Group (ING Insurance Benelux)

Skip McMullan
Trustee, Pi Consulting, Trustee Board Director, London Pension Fund Authority (LPFA) & Director, Bank of America Merrill Lynch UK Pension Plan

Stéphane Blanchoz
Chief Investment Officer- Alternative Fixed Income, BNP Paribas Investment Partners
BNP Paribas Investment Partners is the dedicated, autonomous asset management business of BNP Paribas Group and offers the full range of asset management services to both institutional and retail clients around the world. A client-centric organisation, BNP Paribas Investment Partners is structured around three business lines: institutional, distribution and Asia Pacific & emerging markets. We have some 700 investment professionals globally\(^1\), each specialising in a particular asset class or product type. With total assets under management and advisory of EUR 497 billion\(^1\), BNP Paribas Investment Partners is the 7th largest asset manager in Europe\(^1\).

\(^1\) Source: BNP Paribas Investment Partners, as of 30 June 2014

Clear Path Analysis is a media company that specialises in the publishing of high quality, online reports and events in the financial services and investments sector.

FOR MORE INFORMATION: | W: www.clearpathanalysis.com | T: +44 (0) 207 822 1801 | E: marketing@clearpathanalysis.com

We value your interest as without our readers there would be no reports. Please fill out our short survey to give your feedback. The survey will take approximately 3 minutes and all feedback is anonymous. Click [HERE](#) to access the survey.

Thank you for helping our reports be the best they can be.
1.1 WHITE PAPER
Low-risk anomalies in global fixed income

1.2 INTERVIEW
How ‘secure’ are securitised solutions?
The existence of a low-risk anomaly in equity markets has received much attention of late. In this recent summary white paper entitled “Low-Risk Anomalies in Global Fixed Income: Evidence from major broad markets”, published in the Journal of Fixed Income, Spring 2014 issue¹, Raul Leote de Carvalho of our Financial Engineering team explains that our research has shown that a risk anomaly can also be observed in fixed income markets. Similarly to what we have demonstrated for equity markets, the anomaly is a sector-wide phenomena extending to all segments of the fixed income market.

Risk-based strategies such as minimum variance, maximum diversification and risk parity are popular strategies used in many equity funds to gain exposure to the alpha in low-risk equities. Leote de Carvalho, Lu and Moulin² compared these strategies when applied to a universe of global equities. They demonstrated that minimum variance and maximum diversification approaches invest similarly to each other and are essentially concentrated in a few low-beta stocks, whereas a risk-parity strategy invests in all stocks in the universe and develops a strong tilt towards the smaller capitalisation stocks and also, to some extent, towards low-beta stocks.

These strategies are, however, of no practical use to capture the alpha of low-risk fixed income. The minimum variance portfolio would invest in just a few bonds with short maturities. It would incur prohibitively high rebalancing costs and would come with a high tracking error and extremely low levels of risk and return when compared with the market capitalisation index. Maximum diversification would suffer from much the same problems as minimum variance if applied to fixed income since, like minimum variance, it would be heavily tilted towards the lowest-beta bonds in the universe. The same problems, of prohibitively high turnover, low risk and returns, and concentration in short maturities should be expected. Finally, a risk-parity strategy would result in unmanageable fixed income portfolios invested in all the bonds in the universe.

**Lower risk bonds generated positive alpha**

In our white paper, “Low-Risk Anomalies in Global Fixed Income: Evidence from major broad markets” published in The Journal of Fixed Income, Spring 2014 issue¹, we show that the low-risk anomaly first identified for US equities and sovereign bonds in the early 1970s by Haugen and Heins³ is observed universally in global fixed-income markets between January 1997 and December 2012. Our empirical results show that lower-risk bonds generated positive alpha irrespective of the currency or market segment considered. The results are extremely consistent and comparable for sovereign bonds, quasi-government and foreign government bonds, securitised and collateralised bonds, corporate investment-grade bonds, corporate high-yield bonds and emerging market corporate bonds. Aggregates of some of these market segments generated equally consistent results supporting the universality of the anomaly.

We find that duration-times-yield (DTY) is a particularly efficient risk measure to screen bonds and form portfolios exposed to the anomaly. Portfolios invested in stocks with the lowest DTY have the largest positive alpha, the lowest volatility, the lowest beta and the highest Sharpe ratio, higher than that of the market capitalisation index. Conversely, portfolios invested in bonds with the largest DTY have negative alpha, the highest volatility, the largest beta and the lowest Sharpe ratio, below that of the market capitalisation index.

---

Low-risk anomalies in global fixed income

Exhibit 1A: Alpha / Alpha Volatility

Exhibit 1B: Sharpe ratio

What does this mean for investors?

Our results have significant consequences for investors. From a risk-return point of view, investing in lower-risk fixed income results in a higher Sharpe ratio. Thus including lower-risk fixed income in a strategic asset allocation portfolio should improve the overall risk-adjusted return. It is true that lower-risk bonds also generate lower returns despite the positive alpha. However, there is a trade-off to be made in terms of improvement in the Sharpe ratio and just blindly seeking higher returns with higher risk, a large exposure to the market risk premium and negative alpha.

This is even more the case now since we would expect fixed income market capitalisation indices to generate much lower returns in the coming years than those seen in the back-testing period, which was one of the most favourable periods in the history of the bond market. Coming out of a long and strong bull market for the fixed income asset class means that now is probably the best time in many years to actually profit from the low-risk anomaly from an absolute point of view.

It is not unrealistic to expect that the next few years should bring a normalisation of the long-term Sharpe ratio of the fixed income asset class back to the +0.3 as suggested by Dalio [2010] from the levels often in excess of +0.7 seen in our back-tests. A lower remuneration of high-beta fixed income, perhaps even with negative returns, makes investing in low-risk fixed income with positive alpha and low beta even more appealing. Small amounts of leverage, if built with low leveraging costs, would allow investors to boost returns even further. Investing in low-risk corporate investment-grade and high-yield could be of particular interest to investors seeking higher returns and lower exposure to the market risk premium since it brings additional return from the credit exposure.

How to best capture the low-risk anomaly

Profiting from the low-risk anomaly may be even easier if investors remain benchmarked against the market capitalisation indices. From a relative perspective, our results suggest that benchmarked investors should build their tracking error risk by investing in portfolios with levels of DTY somewhat below that of the market, but not too far below. The resulting portfolios should have a beta just below 1, but not too low, and have a lower volatility than the market capitalisation index.

Due to the combination of a beta of less than 1 and the positive alpha from investing in lower DTY bonds, such defensive portfolios should outperform the market capitalisation index substantially when the market index does poorly and, when the market does well, generate similar levels of return to the market since the alpha from the lower DTY bonds should compensate for the drag created from a beta less than 1. These portfolios should have a higher Sharpe ratio than the market capitalisation index, a positive information ratio over the medium to long term and an asymmetric profile of average excess returns, large and positive when the index returns are negative and close to zero when the index returns are positive.

Exhibit 1: The bonds in the different universes are ranked every month by duration times yield (DTY). Five quintile portfolios are formed with bonds ranked by DTY; from portfolio 1, invested in the bonds with the lowest DTY, to portfolio 5, invested in the bonds with the highest DTY. The portfolios are re-balanced monthly. The return and risk of the portfolios are calculated over the entire period of the back-test, January 1997 through December 2012, and are based on monthly total returns provided by Bank of America Merrill Lynch (BoA ML) for the 85,442 bonds found in the database in that period. The BoA ML database includes issues of companies that suffered bankruptcy or were involved in M&A activity during the period used for the analysis. The final prices of those issues take into account recovery rates and thus our results should not suffer from survivorship bias. Accrued interest and re-investment at the end of each month of cash proceeds from intra-month coupon payments is also taken into consideration. Duration, yields and cash rates are also from the BoA ML database. Bonds with less than 1 year of maturity are automatically removed by BoA ML. A) the alpha is the intercept of a regression of each quintile portfolio returns in excess of cash rates against the returns in excess of cash rates for the market capitalization index of the underlying universe, and is divided by the volatility of the monthly alpha obtained from assuming a constant beta throughout the entire period. B) the Sharpe ratio is estimated over the entire period from the annualised total returns in excess of cash rates for each portfolio divided by the annualised volatility of those excess returns. Source: BNP Paribas Investment Partners.
1.2 INTERVIEW

How ‘secure’ are securitised solutions?

Jessica McGhie: What specific securitised solutions (asset-backed securities, mortgage-backed securities or collateralised debt obligations) are presently offering asset owners the best return opportunities and why?

Stéphane Blanchoz: In Europe the securitisation market is made up of a large spectrum of risk return profiles. As banks used securitisation to finance their balance sheet, senior and subordinated tranches were largely offered to market participants. Investors could then bid on different types of credit risk (tranches) and be exposed to different geographical risk within Europe (diversification). By contrast in the U.S. agencies are taking care of refinancing. As these issuances benefit from an explicit guarantee from the U.S. Government, credit risk is neutralised and investors are left with interest rate and prepayment risks.

So to answer your question in relation to what are the best opportunities, I would say that as of today the senior tranches of securitised instruments in Europe carries the larger amount of value. A year ago European authorities and senior policymakers started acknowledging the need to revive the securitisation markets to restore growth. The perception was changing; securitisation moved from being part of the problem to being part of the solution. Today, the European Central Bank (ECB) is considering purchasing simple transparent asset-backed securities which should give strong support to senior tranches.

We are also seeing a change in regulation as post-crisis insurance companies were strongly penalised for their investments in securitised assets; however increasingly this is becoming less and less the case. We believe support for this market will translate into real purchasing with investors genuinely reconsidering this asset class which in turn, will result in higher valuations for senior tranches.

Jessica: John, please can you expand on Stéphane’s comments with regards to U.S. agencies refinancing activities and the North American securitised solutions marketplace?

John Carey: Certainly, the Federal Reserve has provided a tremendous amount of liquidity and support for the markets through their quantitative easing (QE) programme. Prior to the 2008 financial crisis the Federal Reserve’s balance sheet was roughly $700 billion whereas today it is in excess of $4 trillion. Subsequently this has led to a very significant hunt for yield by market participants. Riskier assets in the fixed income space are being driven to tighter and tighter spreads. The injection of liquidity by the Federal Reserve has helped drive overall yield levels lower. We are nearing the end of the Federal Reserve’s large scale asset purchase program (LSAP). We expect their bond buying to be completed in October although we think the Federal Reserve will continue to reinvest mortgage-backed securities (MBS) pay downs for the foreseeable future.

Whilst Stéphane has indicated the senior tranches of European securitised instruments favourably I would still advise asset owners to be cautious in their hunt for yield, given how close we are to the end of the Federal Reserve’s unconventional policy accommodation. Particularly, given the trend of spreads to tighten as market participants move into more esoteric asset classes and sacrifice liquidity to obtain yield.

We expect to see increased volatility in risk asset spreads as we move away from unconventional policy accommodation. Those market areas which have historically provided the poorest liquidity will be most impacted. In contrast to this we expect the Federal Reserve to continue to purchase MBS even after the taper is completed as they reinvest cash flow pay downs. These pay downs presently range from $15 to $20 billion per month and are often in excess of the monthly net supply of MBS.

Of course it is important to approach securitised instruments by looking carefully at the relative value opportunities inside of what is a very large, liquid and transparent market. We wholeheartedly support MBS and are confident that they will flourish in the current environment. Presently the MBS’ index has a dollar price in the mid 105s and there is really only one liquid coupon that we trade below par. We favour securities that will benefit from slower pre-payments and regard them as relative value opportunities. These include higher-coupon mortgage pass through. Another area of focus is interest only securities that have a negative duration because they will benefit substantially from both wider mortgage origination spreads and higher interest rates. Here in the U.S. we like real estate, both residential and commercial, in addition to the relative
To summarise, I would say that overall U.S. commercial real estate fundamentals are improving even though there has been very little in the way of new construction of commercial properties. Spreads are slightly wider and on a relative value basis we are confident that this year’s strong returns in commercial MBS will continue.

Jessica: As QE starts to draw to a close will there be a knock on effect on the value proposition for MBS?

John: The Federal Reserve has been a very important player in this market but many market participants felt that as we entered 2014 the Federal Reserve’s diminishing demand would have a major impact on the spreads. However, given that excess returns from mortgages have been a small positive in 2014, the substantial widening that many market participants were looking for has so far not happened. Yet on the other hand, in terms of the supply picture, the net supply of MBS is pretty close to flat; at the close of July it was about 25 billion. Research departments up and down the street have revised their net supply numbers downwards for the rest of 2014. As the Federal Reserve steps away and demand slackens, there has simultaneously been a substantial slowdown in the supply of MBS which in turn has resulted in essentially flat performances from mortgages this year.

Stéphane: QE is drawing to a close in the U.S. but I would add that in Europe, QE’s end will affect the value proposition of securitised solutions in the proper way. The large amount of securities issuance that you had back in 2007 have gone and QE might actually incentivise banks to increase their securitisation programmes. For investors, spreads remain attractive: a senior Italian MBS is paying you almost 150 basis points over a 5 year basis when at the same time, a 5 year German bond is yielding 0.19%. Therefore, we can reasonably expect that simple and transparent asset backed securities will be affected by QE positively.

Jessica: You highlighted earlier that European regulation is increasingly treating securitised investments more favourably. Would you therefore suggest that insurers and pension plans move now or hold off further for regulation to fully play out and further market strengthening?

Stéphane: That’s a very good point and I would say asset owners need to move on expectations because otherwise, if they invest too late the optimum opportunity might be behind them. Now is a perfect moment to invest in such assets, whose quality remained strong in Europe from a historical perspective (no defaults on AAA issued tranches whatever the jurisdiction). However, I do appreciate that some insurance companies remain reluctant to do so because even though to a lesser extent, they can still be penalised.

Thinking specifically about pension funds looking at securing cash flows, European securitised assets are actually very adapted instruments. Today we can appreciate that the longevity test has passed in Europe: marked to market losses during the crisis (price depreciation) did not translate into write-downs on the senior tranches.

Seven years ago everything had a price at any single second but what really mattered was the resilience of the cash-flows provided by the instruments. Should markets halt, any corporate turning to financial markets for their funding will face trouble and might restructure their debt, as they negotiate with their bank to finance them through such turmoil markets. By opposition, a disruption of capital markets will likely not impact the resilience of ABS cash flows: securitised instruments are indeed amortising over time as borrowers continuously repay their loans.

Jessica: Whilst there has been a resurgence of securitised solutions the more cautious asset owners might still be sceptical- what advice would you give to them?

Stéphane: Exposure to securitisation has often been an indirect way for investors to access the loan markets, whereas for banks its purpose has been mainly to refinance their balance sheets. As you correctly pointed out, in the aftermath of the crisis, European asset-backed securities and collateralised loan obligations were regarded suspiciously and perceived as complex, poorly regulated instruments. However, according to a Standard & Poors study, the cumulative default rate of European ABS since mid-2007 only represents 1.54% at the end of Q4 2013 in comparison to 18.7% for U.S. structured finance.

The main message to be conveyed is that Europe’s situation is different from the U.S. one. Whilst securitised instruments may have been the instruments most affected by the crisis, they have also made investors aware that any liquid market can at any point be turned illiquid. Therefore, securitised instruments shouldn’t be adapted for opportunistic investments. Having these instruments into daily liquidity funds was a mistake as there was certainly never a ‘free lunch’ to be had. If you want to capture a liquidity premium you have to really consider what the portfolio liability profile is. Just because something is illiquid now doesn’t mean that it is automatically risky in terms of credit, the proof for which can be found in events from 2007 to today.

Another point to mention to investors refers to the transparency of European
ABS which has improved since the crisis. Loan by loan details on collateral are increasingly available (PCS initiative, European Data Warehouse sponsored by the ECB,) and generally, the current standards of disclosure are now much higher than in other forms of financing such as unsecured lending or even covered bonds.

**John:** We are all very hopeful that we have learnt our lessons about not lending money to those who don’t have the ability or intent to pay it back. Since 2008 underwriting standards on the residential mortgage side have improved substantially. We use the Fair Isaacs Credit Score (FICO) score. Back in the 2005-06 period, issuers and originators of mortgages were acting rather foolishly. Average FICO scores were well below 700 and the loan to value ratios were above 80%. However, the recent issuance of securities have had higher average FICO scores in the range of 760. Although they have drifted a bit higher more recently, loan to value ratios have remained below 80%.

The credit performance has been outstanding as well as a substantial increase in the insurance premiums that borrowers are required to pay to credit enhancement agencies. I would also say that those insurance premiums have most likely doubled since pre-2008 with such agencies being much better capitalised as the taxpayer and government stands close behind them.

**Jessica:** Do you feel they should be used as a replacement for specific assets or are they an additional asset tool?

**Stéphane:**: Certainly over engineered solutions should be avoided. By this I mean instruments that investors don’t fully understand; however, securitised assets don’t automatically qualify as such.

Increased standardisation means increased understanding of the instruments’ dynamics but as with any investment you have to fully appreciate the risk taken on.

**John:** I echo that. As the Federal Reserve begins ending its policy accommodation there is of course the concern that market areas with a give of liquidity and credit risk could suffer. Some of the more esoteric asset classes with limited amounts of issuance will not have the same level of investor following and therefore run the risk of becoming orphaned and susceptible to volatility.

That said of course there are pockets of portfolios that can both withstand some volatility and provide liquidity, and therefore able to retain their portfolio position. Generally speaking though this is limited and so asset owners need to have a long holding horizon if they want to stay in such classes.

**Jessica:** In order to ensure that asset owners really understand the solution, what due diligence do they need to be running?

**Stéphane:**: Asset owners should primarily understand the cash flow process of the instrument and the risks associated. The lower the subordination, the higher the attention to credit risk. With multiple jurisdictions in Europe, an impact of non-performing loans on junior tranches can strongly vary one ABS to another. Senior tranches will primarily be sensitive to cash flows assumptions (prepayment risk), and investors should stress their portfolio to see how it reacts to different assumptions. Finally investors should understand the instrument rationale because there is a lot of benefit of having dedicated people mutualising your ability to invest in these tranches in light of the number of risks to be assessed.

**John:** Asset owners need to pay attention to the regulatory framework particularly in the dealer and banking community regarding the risk weightings for various asset types. Some securities have 100% risk weighting and in such cases, it becomes very difficult for counterparties in the dealer community to be very active in those sectors.

They are happy to act as an agent but if you need them to provide liquidity it becomes very difficult. If the counterparty takes you out of a position but still has to apply 100% risk weighed capital, then it is likely that they will not hold onto it for any length of time. Of course this applies to both securitised solutions and credit and in order to truly understand where the breaks and capital charges associated with holding various different inventories are, more analysis needs to be done.

“recent issuance of securities have had higher average FICO scores in the range of 760 . . . ”
ENHANCING ASSET TRANCHES

2.1 ROUNDTABLE
What role can alternative debt play in generating return in the current low yield environment?

2.2 INTERVIEW
Exploring the investment opportunities in illiquid assets

2.3 INTERVIEW
Utilising structured credit in your search for yield
2.1 ROUNDTABLE

What role can alternative debt play in generating return in the current low yield environment?

**Moderator**

Noel Hillmann
Managing Director,
Clear Path Analysis

**Panellists**

Marieke van Kamp
Head of Real Estate &
Alternatives, NN Group
(ING Insurance Benelux)

Skip McMullan
Trustee, PI Consulting,
Trustee Board Director,
London Pension Fund
Authority (LPFA) &
Director, Bank of
America Merrill Lynch
UK Pension Plan

Stéphane Blanchoz
Chief Investment
Officer- Alternative
Fixed Income, BNP
Paribas Investment
Partners

Noel Hillmann: I'd like to begin by asking, what alternative debt opportunities are you currently exploring and why?

Stéphane Blanchoz: For us alternative debt opportunities are any credit investment that is not mainstream whether that be instruments or processes. We see opportunities in this space such as small to medium enterprise (SME) financing in Europe, whether by securitised assets or direct lending and also explore investments in project finance and asset based lending. Project finance is mostly linked to infrastructure debt whereas opportunities in asset based lending could for example be shipping or aircraft financing.

Noel: What are the compelling factors for choosing those areas of investment?

Stéphane: The attractive risk return profile is one reason if you consider the premium you get as a trade-off for illiquidity. We are also going to look at the level of credit support and recovery assumptions we have going into the instrument as well as any diversification effect compared to other assets.

You also have to consider the pre-payment risk, which you need to carefully monitor. Finally, the timeframe for investments should also be taken into account to avoid temporary imbalance between offer and demand.

Noel: What debt opportunities are you exploring Skip?

Skip McMullan: We look more at liquid versus illiquid assets and like the definition that Stephane gave. We would look at this definition as being in the illiquid space. The reason we are interested in illiquid assets is because we are looking for assets that give additional protection in relation to inflation.

Being a pension fund as opposed to a pure asset manager, we are looking to achieve greater certainty about long term predictability as we need to be sure that we can pay pensions 70 years down the road. Some of these illiquid opportunities also give us the ability to be opportunistic versus very targeted which would most likely be the case if we were investing in more mainstream assets.

We have just increased our stake in a PFI company called Semperian to 10%. We have taken up a board seat on their company as well and this is the direction we plan to continue moving in.

No one should underestimate the amount of governance that is involved in the illiquid space as you have to do a lot more of the research yourself, so you have to have a much stronger governance framework and reference around which you make these investments.

Marieke van Kamp: Alternative debt is as part of our overall illiquid asset investments. We have been investing into infrastructure debt for a year now and have also set up a working relationship with ING Bank to source commercial real estate loans as well as having been involved in the emerging markets debt space for the past few years. We are exploring several other alternative debt investments such as project financing and types of loans which lie between corporate and real estate loans.

As a Dutch insurance company we are into residential mortgages and have our own sourcing for this.

Taking the illiquid assets as a whole the allocation in total is almost 20% of the portfolio.

Noel: How high is your appetite for infrastructure debt?

Marieke: Our appetite is bigger than our allocation. We have experienced to
be quite hard to build up the portfolio in this area. Currently our targeted allocation is 1.5 - 2% of the total assets under management but are certainly not there yet.

**Noel:** What challenges have you come up against that have caused you not to reach your target?

**Marieke:** When we started to invest in infrastructure debt two years ago we expected there to be a lot of secondary trades in the market as a result of BASEL and the banking situation. We expected more secondaries to come from the bank side but it didn’t happen and instead, now see that banks are not only keeping the assets on their balance sheets but are even expanding through a lot of new primary deals. The total competition is very large and subsequently it is hard to both join the process and become one of the winning parties. We have several managers who are sourcing in the market for us and they have all had the same experience. In my view it is not a case of not being strong enough in the market but rather it’s more just the current situation.

**Skip:** I completely agree. It is easy to talk about the opportunities in areas such as infrastructure but actually at the moment the number of deals out there where you can either be in the primary or secondary space is not many. The yields that are being asked for the assets are very expensive. We are keen to buy more and are looking to invest up to 5% of our fund but find that it is difficult to get there with the sort of yields we are looking for.

**Noel:** What are your allocations currently?

**Skip:** We would like to have up to 5% of the current allocations in infrastructure alone. Illiquid assets for us is property, infrastructure, alternative debt, commodities, hedge funds and private equity, all of which we are currently managing tightly. None of these are very appealing at the moment given the worldwide economic situation. It is property and infrastructure in particular that we are looking at. We actually just won the mandate from the Greater London Authority to fund with Grainger and Bouygues a new brownfield site in the Dockland area of London. We were the low bidder on that and under bidder on another site which went to another company.

In total, we would like to have between 30-40% allocated to illiquid assets but you have to bear in mind that as a pension fund it is in the liquid area where we have the bulk of our investments. This is because we have to pay pensions every month. We are looking to have liquid assets available to us as many people in the pensions area tend to forget the point that whilst you can have the assets and liabilities, you also need to have cash flow and a bridge between the two.

**Noel:** How high is your appetite for infrastructure debt and what advice would you give to investors considering this asset class? Which part of your portfolio would you apportion capital for alternative debt investments from?

**Stéphane** We invest for third parties who are traditionally buy and hold investors exploring illiquid assets in order to capture illiquidity premiums and are looking at further improving their portfolio diversification. We are also seeing traditional asset managers considering allocating to fixed income but not to the traditional assets because the yield simply isn’t there.

I agree with Skip regarding cash flows. If you are looking for something secure and are ready to trade off for illiquidity return, then the main lesson to be learnt from the 2007 crisis is that you should focus on cash flow generation and the resilience of your cash flow. The marked-to-market valuation of your investment should not be your primary area of focus.

For investors willing to go into private debt or illiquid assets I therefore suggest focusing first on the resilience of the cash flows (predictability) and how it fits into the asset and liability management’s exercise.

**Skip:** It is this linkage with the cash flow that matters most to us. We cannot afford, even if there was a nice yield, to put an excessive amount into illiquid assets because the cash flow simply won’t be there to pay pensions in the short-term; even we ensure that we have the cash to pay pensions in the long-term. This is because we have to consider what will happen in more than 60 years before we know if the assets are appropriate. The capital we allocate is the balance between the yield and liquidity issues.
What role can alternative debt play in generating return in the current low yield environment?

“people will allocate more to assets which are illiquid because on the liquidity side the yield isn’t there. . .”

Noel: To what extent will alternative debt shape the overall liquidity of your portfolio? Added to that question, given that quantitative easing (QE) is drawing to a close, how can asset owners position these assets for optimum output?

Stéphane: To shape the overall liquidity of my portfolio is a difficult question to answer as we manage for third parties. If people want to invest we will do so for them. The trend though is very clear and people will allocate more to assets which are illiquid because on the liquidity side the yield isn’t there. People who buy traditional fixed income will essentially not get the yield they need to match their liability requirements. This will be an increasing trend for me. Asset managers need to provide institutional investors with income solutions and enter the alternative debt markets to capture additional return. As for the question on QE, although it looks to be drawing to a close in the U.S. Europe’s situation may in fact be different. In any case, I am not sure that it will directly affect private debt or illiquid assets. The level of prepayment or illiquidity premiums can be indirectly impacted upon though, but again what matters is the resilience of the cash flows and the asset liability matching factors.

Noel: Looking around the marketplace, what advice would you provide to an asset owner as to where they should allocate in the next 12 months?

Stéphane: Infrastructure is interesting and my answer today differs from what it would have been a year ago when investors largely focused on Europe. Today I would say there are additional possibilities available to us to invest in infrastructure globally. A core Europe fund will probably be looking at yields in the 150 basis point area over Libor for a weighted average life of 12 years. You can also go to more challenging areas in OECD markets and growth countries, where you could look at 250+ basis points over Libor for a weighted average life of seven to ten years.

Noel: Marieke, which part of your portfolio would you apportion capital for alternative debt investments from?

Marieke: If you take only alternative debt then we currently allocate 7.5% excluding residential mortgages and so forth. It is practically coming out of our government bond exposure as during the crisis there were a lot of solvency constraints and risks. We had to take a lot of risk out of the portfolio and therefore, at the peak of the crisis the government bond exposure was much higher than 50% of the overall portfolio. In the past three years we have gradually started to diversify the portfolio again into brackets of illiquid debt, real estate, private equity and similar investments. Every purchase that we can do on the infrastructure debt side is financed either by selling government exposure or other more liquid fixed income assets.

Noel: In terms of diversification within the portfolio how are you treating this? Is there any fear of concentration risk?

Marieke: Two years ago we set out the framework for our infrastructure debt allocations and decided upon certain allocations over European countries and the specification on the renewables, health care and specifics with those certain bandwidths. We now see that it is quite hard to fill that mandate because of the fact that the market is very limited; in some of the countries and sectors there are hardly no potential investments to be found. Also, there are moments in time when a lot can be done on the renewables side for instance. Then you temporarily over shoot your maximum. Also, two years ago the yields were higher than they are now, so we’ve put in some hurdles and had to adjust them recently as it was not possible to do any transactions.

Skip: This would be true in lots of Europe but certainly here in the UK, we have a general election next year. It is common knowledge that the government and George Osborne [the UK Chancellor of the Exchequer] in particular would do anything to get more infrastructure to be funded by the private sector. He is looking to pension funds and asset managers to participate in that. The problem is that the numbers don’t stack up which makes it very difficult for us to do this. If you look at the yield, cash flows and so forth, there is a gap between the financing needs and financiers willingness to step up to the plate.

“A core Europe fund will probably be looking at yields in the 150 basis point. . .”
What role can alternative debt play in generating return in the current low yield environment?

Noel: To what extent will alternative debt shape the overall liquidity of your portfolio and given that quantitative easing is drawing to a close, how can asset owners position these assets for optimum output?

Skip: All of us in our various funds have got constraints in terms of an overall limit to illiquid assets. Ours is between 30-40%. We try not to go above 30% but we would definitely not go above 40%. There is some flexibility around this if there was a good deal.

There are also various sub divisions of what we would want to have in terms of risk buckets, as there is a risk allocation and appetite that goes with that illiquid portfolio.

Noel: Given that QE is drawing to a close how do you feel that asset owners can position these assets for optimum output?

Skip: QE hasn’t had any significant impact on our asset allocation liabilities. Liabilities perhaps, but only because of the impact that you could argue QE has had in terms of inflation on our liabilities. Really we have not had great debates about it. Now the debates are going to be much more around what happens in the brave new world of pensions in the UK, where people do not have to buy an annuity. People are increasingly asking what the industry will come up with in the form of structured draw down annuity and end of life products. If you are in the insurance industry it’s a very interesting time as for the first time in years you have to come up with some radically new products which will take into account the fact that people in this country do not have to buy an annuity by age 75. There are so many other alternatives that you can deal with now.

Noel: Marieke, to what extent will alternative debt shape the overall liquidity of your portfolio and how can asset owners position these assets for optimum output?

Marieke: Our liabilities on average are approximately 16 years in duration which is shorter than a pension fund but still quite long. The majority of our products are guaranteed with assured return so we need the yields to be able to pay out all of these liabilities. In this sense it is an absolute requirement for an insurance company to find these kinds of investments that provide the required yield. The portfolio will become more illiquid relative to what it was two years ago but that is not a concern as we are coming from a position that was probably more liquid than actually necessary.

Noel: We’ll finish on that last comment. Thank you for taking the time to share your insights into this subject.

“currently allocate 7.5% excluding residential mortgages…”
Exploring the investment opportunities in illiquid assets

Jessica McGhie: Why did the LPFA sell off almost all its stock of UK gilts and swaps?

Susan Martin: We are a pension fund and as such our investment objective is to ensure that over the long-term we have sufficient assets to meet all our liabilities when they fall due. To do so we need to have a range of assets in our portfolio and sometimes this will include gilts. However, last year we sold our interest rate hedge because we believed, and still do, that interest rates will rise over the long-term and consequently felt we should realise the profit we’d accumulated from the hedge. It was a sensible thing for us to do and we were pretty pleased with the results. As we move forwards and our investment positions change we would certainly consider putting similar hedges in place if the conditions were right. We decided that given interest rates had been low for some time, they could only rise and therefore we should be making our money elsewhere.

Jessica: Do you anticipate this will change any time soon?

Susan: I can’t say no but certainly we have no intention to do so at present; although of course we always keep one eye open. It made sense to make that call then and we’re happy that we did.

Jessica: You’ve recently expanded your investment team to expand your investments into illiquid assets, what benefits do you hope such a move will bring?

Susan: We’ve always had some investments in illiquid assets whether that be commercial property, agricultural land or anything in between but it’s only ever formed a small part of the portfolio. On our recent review of our portfolio we decided we wanted to roughly have an allocation of 55% in liquids and 30% in illiquids. This weighting is largely because as a pension fund, we do of course have to make regular payments. Therefore, it is important that we have an appropriate level of liquidity and do so by keeping part of our assets in cash or near cash, to act as acceptable collateral for hedging purposes.

Secondly we also accepted that there needed to be a balance and as a long-term investor requiring cash to pay pensions, we appreciated that illiquid assets were capable of providing that valuable illiquidity premium. The definition of an illiquid asset is an investment of three years or more and that’s quite important. We’ve got this focus on cash flow and characteristics of this asset class sit nicely within that and our liquidity profile. Certain illiquid asset classes such as infrastructure provide us with long-term dependable cash flow and inflation linkage.

In terms of the strategic asset allocation whilst we already had some illiquid assets we did nevertheless change the allocation benchmarks slightly whilst expanding our resources and team to make more decisions in-house. We now have a far bigger team focusing purely on illiquid investment opportunities and their roles include both analysing the potential opportunities or managing and monitoring others.

Private equity, infrastructure, property and commodity investments are really important for us at present. However, they do require very particular skills because an awful lot of work needs to be done right at the beginning in terms of planning, sourcing and due diligence. Once you have that investment in place you have to ensure you have very robust cash flow measures. We also focus on return consistency and sustainability. As we want to do more ourselves it’s important that we have that skill and resources right the way through the sourcing to monitoring process.

Jessica: You mentioned private equity, infrastructure and commodities but what other asset classes within the ‘illiquid bucket’ are you focusing on?

Susan: Whilst these three are important they are not the only ones. We’re also focused on alternative debt and property, especially in the private rented sector, and are confident that they are good investment opportunities, although property investments do have lengthy due diligence processes. Illiquids are long-term investment vehicles and so it’s crucial that as an asset owner you understand the nature and timing, ensuring they link back to your future liabilities. These factors are what drive our decisions with regards to asset allocation and consequently have a significant influence on our ability to achieve our investment objectives.

Our investments are highly diversified whether by asset class, geography or industry, and this diversification is very important to us. In terms of how we look at the illiquid asset class, we’re using both quantitative and qualitative investment approaches to ensure opportunities are captured and that
Exploring the investment opportunities in illiquid assets

we are maximising the return with acceptable levels of risk.

We look at the asset class, we look at innovative ideas and have regular discussions amongst both ourselves and other market participants to identify the opportunities that have a surer chance of helping us meet our liabilities in the future. We regard infrastructure and real estate as excellent opportunities, most particularly in the private rented sector. We monitor these and other assets to ensure prices are right and I consider us to be very canny and careful with regards to the deals we enter. We have to be sure that we are getting the right price and returns; when locking your money up you have to be very careful and be sure of the investments you are making.

Jessica: Has this been a tactical move or a strategic component of the long-term investment strategy?

Susan: It certainly is a strategic move because of their long-term characteristics. The point associated with illiquid investment is the J curve. With illiquid investments especially in primary funds, the long investment period means it will be quite a few years before you start seeing returns. For example, if you’re investing in property you will be running through the land acquisition, building and renting out stages consecutively and so of course it will be two or three years before any returns are made. As a long-term investor we have to make sure that we’ve got our cash flows right for both now and the future. This is why our asset allocation is around 55% in liquids and 30% in illiquids; it’s all about making sure we know what cash flows we need, adjust and invest accordingly.

Jessica: What does this mean for your portfolio benchmark asset allocation?

Susan: The allocations aren’t fixed in the sense that we work on a minimum and maximum range and our tolerance range allows us to move as and when new opportunities are identified or presented to us. Also you need to bear in mind that an investment can be made that is 30% of your allocation, but in reality during that first investment period, not only will returns not be generated, the capital drawdown is likely to be done in stages which will increase year on year. Hence why it is important that we work on a range instead of an absolute fixed percentage.

It’s a complicated process to both manage and truly understand what you’re investing in and when you will start realising returns. Whilst commitments to funds are made at the beginning, the capital drawdowns are usually done in stages, and as such it is really important to understand the monitoring and management of assets. It’s not a straightforward process, unlike investing in equities, where you know straightaway what you’ve got in your hand. That’s why the benchmark asset allocation is so important as a guideline.

Again though it comes back to the point I made earlier about the importance of continually assessing assets and liabilities and I would say this is what differentiates us from most other pension funds. We’re not just saying our assets have grown by x, we’re saying what our liabilities are and exploring how best to reduce these. Whether that be through good data management or by hedging liabilities, what’s important is knowing what the cash flow should be for those assets. We need cash now, we need it in ten years but through both we are long-term investors; I’ve got people in our scheme now earning pension benefits that will be being paid out in the 22nd century. That’s my cash flow. I’ve got in excess of almost one hundred people over one hundred years old and so it really is about understanding those liabilities and matching them over the long-term.

Jessica: Do you see yourself diversifying further within the illiquid asset class or will your approach be one of a cautious investor?

Susan: We are always exploring what’s around and currently alternative debt and property appear pretty good investment opportunities. If things change in that area then of course we will look elsewhere because our focus is always on the return we need. The property market represents good value and that’s what we’re about; getting the best deal for our members.

Jessica: Thank you Susan.

"asset classes such as infrastructure provide us with long-term dependable cash flow and inflation linkage. . ."
2.3 INTERVIEW

Utilising structured credit in your search for yield

Interviewer
Jessica McGhie
Senior Publisher & Strategy Manager, Clear Path Analysis

Interviewee
Mascha Cani
Head of Structured Credit, PGGM

Jessica McGhie: Structured credit is a broad term covering both AAA-rated tranches and first loss tranches. I understand PGGM’s focus is the latter. Please could you expand on the role that such investments play in today’s financial markets?

Mascha Canio: Structured credit covers a wide range of investments all of which have different risk return profiles and different types of underlying exposures. PGGM invests in a niche of the structured credit space in what we call “risk sharing transactions”. Banks need to hold capital for various risks that they run and one of those risks is credit risk. Banks lend their clients’ money and of course there is always the risk that the loan and interest might not be fully repaid in time. In order to mitigate that risk banks need to hold capital. At PGGM we share in this capital for credit risk with the bank and by doing so, provide the bank with a perfect hedge for their portfolio of outstanding loans.

The form and shape in which we do this is by investing in a first loss tranche. As an example, let’s take a portfolio of say €1 billion with different loans to different clients, we may agree with the bank to run the credit risk over the first €100 million of losses. It’s also important to note that the investments I am talking of are done on behalf of our pension fund client PFZW, the Netherlands’ care sector pension fund and so the “us” I refer to is really them.

For the bank these risk sharing investments may account for capital. That can be economic capital and/or regulatory capital and therefore may also be referred to as capital relief trades. For us it is not a requirement that the investments adhere to this regulatory capital relief because we are heavily focused on partnering with and investing in one of the bank’s core activities. Consequently we are predominately concerned with sharing in credit risk in a particular market and for that reason we closely look at and assess the various aspects regarding that.

Another way of looking at these types of investments is to compare it with investing in stocks of the bank in question. Similar to a shareholder we are in a first loss position; although only with respect to a particular part of the bank. The first loss is the riskiest part of the capital structure as is equity. Therefore you need to pay great attention to know exactly what you’re investing in. For the banks, it is essentially a tool helping them in their capital management.

Jessica: With regard to the parameters of these risk sharing transactions, how rigid are they? Is there much leeway or are the parameters and benchmarks rigid one transaction to the next?

Mascha: There’s actually quite a bit of variety and no such thing as a set standard. The transactions we do are bi-lateral, private transactions and so we are dealing directly with the bank as the sole investor. That might of course change over time but for now we have agreed that transactions are tailor made to both our own mandate and the banks’ needs. There is no liquid market for the investments we do. Banks do issue different structured credit investments to a wider audience but typically we don’t get involved in this because they don’t meet our mandate’s requirements.

Jessica: As you mention these are tailor made to the banks but on the other side of this, is there the same flexibility with regards to PFZW and other such pension funds?

Mascha: They are tailor made to the pension fund’s mandate as well. In terms of the variety between the different deals, there are certain elements that run through as common characteristics given that they are first loss tranche investments sharing in expected credit losses of the underlying loan portfolio as well as part of the unexpected credit losses. In terms of these investments being an alternative form of capital for the bank, there is a limit to what share of the portfolio of outstanding loans is expected to result into credit losses. It is more likely that this is between 5% and 10% of the underlying pool than 50%.

There are certain similarities that you may refer to as characteristics because they exist across all our transactions. For our client, one element that is extremely important is the alignment of interest. The bank needs to keep significant exposure to every single loan in that risk sharing portfolio. This is actually achieved by requiring the banks to not hedge between a quarter and a third of each loan in the risk sharing portfolio.

As a result, if it comes to a credit loss claim where one of their clients has not repaid a loan and is in default, the bank is not fully exposed to the full €10 million loan in the portfolio but instead only to 30%, back through their
Utilising structured credit in your search for yield

profit and loss accounts. This is how we ensure that the bank continues to manage their exposures actively.

Jessica: To what extent has regulation impacted on these risk sharing transactions?

Mascha: Regulation has certainly impacted in this space. Shortly after the crisis started Basel III began addressing factors that had actually caused the crisis originally and so in that respect, these transactions have been affected in numerous ways. Firstly as a result of Basel III banks have to hold more capital and so one could simplistically conclude that more of these risk sharing transactions need to be done. Simultaneously Basel III requires banks to focus on the leverage ratio and as new elements emerge banks have shifted focus from one priority to the next and these transactions, are not always classified as a top priority.

This is largely because they take a lot of time to set up and time is of course money. Consequently you have to be sure that any investment will significantly contribute to your goal and in an environment where regulation continually changes you’re less likely to embark on such a complex transaction.

Jessica: As asset owners continue seeking portfolio diversification what advantages can such specialised investments bring and do they alter illiquidity premiums?

Mascha: In terms of diversification one key advantage that these transactions bring is the access to credit exposures on the banks’ balance sheets that are otherwise unobtainable. It would be very difficult to get those exposures elsewhere as they do not all trade in the public market and so certainly in that sense it can help asset owners achieve diversification.

The second element relates to how you structure deals. We focus on structuring what we call “robust transactions” that continue to perform relatively well even in times of stress and economic headwind. Given that we have some interesting years behind us we are able to look back and say this has been achieved and that these risk sharing transactions have consistently contributed positively to the portfolio. It can also be an attractive diversifier to the overall investment portfolio.

Nevertheless these are illiquid investments and so it is important that you keep an eye on what you feel your illiquidity premiums should be. Given though that there is an enormous search for yield in today’s market there is certainly a trend whereby investors are looking at new investments, including these and similar types of transactions in the structured credit space. At the same time though overall activity in the structured credit market was far larger pre 2008 and this is largely because the crash cooled many parties’ feelings regarding structured credit.

Jessica: You mentioned these are illiquid investments and that asset owners always need to keep an eye on their own liquidity state and appetite. Are there any other final pieces of advice or you would give to asset owners considering these investments?

Mascha: Generally speaking I would say that structured credit gained an unnecessarily bad name as a result of a number of bad investments. Large sums of money were involved in these cases, but relatively speaking a substantially larger share of structured credit investments have produced good returns.

Rather it’s down to understanding what you invest in and with respect to the subprime market as an example of an area where the structured credit market damaged its reputation, you simply have to ensure that you have asked enough questions regarding the underlying loans, how they are originated and under what conditions.

If for example they were originated by one entity, collecting an origination fee and then immediately selling them on in full, that entity would be off the hook in terms of the risk originated. So to conclude it simply comes down to understanding what’s happening underneath the surface, regardless of whether you are investing in a AAA security or a riskier part of the capital structure.

Jessica: Thank you Mascha.

“these transactions bring is the access to credit exposures on the banks’ balance sheets that are otherwise unobtainable. . .”
Delivering investment success for our institutional clients

COMPANY PROFILE BACKGROUND

- Manage EUR 154 billion for institutional clients
- Over 20 years on-the-ground in the US, UK, Netherlands, Germany and France
- Over 200 investment professionals in Boston, New York, London, Amsterdam and Paris
- Nearly 100 client facing professionals dedicated to institutional investors
- Investment professionals average 15 years of experience
- Wholly-owned subsidiary of BNP Paribas, one of the best-rated banks by S&P

BACKGROUND

BNP Paribas Investment Partners is the asset management arm of BNP Paribas, one of the largest and best rated banks in the world. We are organised around three client segments: institutional investors, intermediary distributors, and clients in emerging markets. Our institutional business line consists of over 350 staff dedicated to providing the highest-quality global and regional multi-asset, equity and fixed income solutions to our institutional investors.

We manage EUR 154 billion for institutional clients including pension funds, central banks, sovereign wealth funds and supranational organisations, insurance companies, corporates, and endowments and foundations.

Our investment capabilities are managed by our subsidiaries: BNP Paribas Asset Management manages our multi-asset, equity and European and Asian fixed income solutions and Fischer Francis Trees & Watts (FFTW) manages our global and US fixed income strategies, including all of our credit capabilities.

Our parent company, BNP Paribas, provides us with the resources we need to continue providing the highest quality, cutting edge investment services that our institutional clients expect of us.
OUR VALUE PROPOSITION

We engage with participants in the local markets in which we invest and where our clients are located. The added value we offer to our clients globally is our local on the ground expertise. We have people locally based in the markets in which we invest and where our clients are located. This local presence is vital – in terms of our ability to understand not only local investment opportunities, but also what our clients expect of us.

We commit our resources to develop our client relationships into true long-term partnerships. Access to our portfolio managers is an important part of our service to our clients, as it helps us to customise the solutions that are right for them and keep them informed about how their portfolios are positioned. We have developed several of our market leading investment capabilities as a direct result of working closely alongside our clients and listening to their needs. These include our inflation linked products, our global and regional bank loan strategies, and our risk overlay and liability driven investment solutions.

We aim to achieve top-class results for our clients by promoting investment excellence throughout our culture. Our investment teams offer an attractive combination of experience, size, and capacity. Our strategies aim to be in the asset management “sweet spot”, with assets under management that are large enough to exploit economies of scale but small enough to enable us to nimbly capitalise on opportunities as they arise.

OUR CAPABILITIES

<table>
<thead>
<tr>
<th>Multi-Asset Solutions</th>
<th>Equities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Asset Products</td>
<td>European Equities</td>
</tr>
<tr>
<td>Customised Solutions</td>
<td>US Equities</td>
</tr>
<tr>
<td></td>
<td>Global Emerging Market Equities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixed Income</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Sector</td>
<td>Global Listed Real Estate</td>
</tr>
<tr>
<td>Multi-Sector</td>
<td>Low Volatility Equities</td>
</tr>
<tr>
<td>Credit and Loans</td>
<td>Clean Energy Infrastructure</td>
</tr>
<tr>
<td>Short Duration</td>
<td>Money Markets</td>
</tr>
<tr>
<td>Money Markets</td>
<td>Emerging Markets</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>Absolute Return</td>
</tr>
</tbody>
</table>

WHY BNP PARIBAS INVESTMENT PARTNERS

- Established institutional manager with over 20 years of experience managing institutional assets in the US, UK, Netherlands, Germany and France
- Engage with participants in local markets with nearly 100 client facing staff in 12 offices throughout Europe, North America and the Middle East
- Commit to developing long-term partnerships
- Aim to achieve top results by promoting a culture of investment excellence

OUR LOCATIONS

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amsterdam</td>
<td>+31 205275275</td>
</tr>
<tr>
<td>Brussels</td>
<td>+32 2274 8311</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>+46 69707 99860</td>
</tr>
<tr>
<td>London</td>
<td>+44 207 595 2000</td>
</tr>
<tr>
<td>Milan</td>
<td>+30 02 7247 4239</td>
</tr>
<tr>
<td>Paris</td>
<td>+33 158 97 2525</td>
</tr>
<tr>
<td>Zurich</td>
<td>+41 58212 6111</td>
</tr>
<tr>
<td>Boston</td>
<td>+1 617 478 7200</td>
</tr>
<tr>
<td>New York</td>
<td>+1 212 681 3000</td>
</tr>
<tr>
<td>Toronto</td>
<td>+1 416 365 9600</td>
</tr>
<tr>
<td>Bahrain</td>
<td>+97 317866150</td>
</tr>
<tr>
<td>Kuwait</td>
<td>+96 522987640</td>
</tr>
<tr>
<td>Asia</td>
<td>+852 2533 0000</td>
</tr>
<tr>
<td>Latin America</td>
<td>+52 (55) 5003 9405</td>
</tr>
<tr>
<td>Nordics</td>
<td>+46 8 5623 4700</td>
</tr>
</tbody>
</table>

www.bnpparibas-ip.com

Source: BNP Paribas Investment Partners as of March 2014
DISCLAIMER

Some elements of this material have been prepared by BNP Paribas Asset Management S.A.S. (BNPP AM)* a member of BNP Paribas Investment Partners (BNPP IP)**.

This has been produced for information purposes only and does not constitute:

1. an offer to buy nor a solicitation to sell, nor shall it form the basis of or be relied upon in connection with any contract or commitment whatsoever or
2. any investment advice.

Opinions included in this material constitute the judgment of BNPP AM at the time specified and may be subject to change without notice. BNPP AM is not obliged to update or alter the information or opinions contained within this material. Investors should consult their own legal and tax advisors in respect of legal, accounting, domicile and tax advice prior to investing in the Financial Instrument(s) in order to make an independent determination of the suitability and consequences of an investment therein, if permitted. Please note that different types of investments, if contained within this material, involve varying degrees of risk and there can be no assurance that any specific investment may either be suitable, appropriate or profitable for a client or prospective client’s investment portfolio.

Given the economic and market risks, there can be no assurance that the Financial Instrument(s) will achieve its/their investment objectives. Returns may be affected by, amongst other things, investment strategies or objectives of the Financial Instrument(s) and material market and economic conditions, including interest rates, market terms and general market conditions. The different strategies applied to the Financial Instruments may have a significant effect on the results portrayed in this material. Past performance is not a guide to future performance and the value of the investments in Financial Instrument(s) may go down as well as up. Investors may not get back the amount they originally invested.

* BNPP AM is an investment manager registered with the “Autorité des marchés financiers” in France under number 96-02, a simplified joint stock company with a capital of 64,931,168 euros with its registered office at 1, boulevard Haussmann 75009 Paris, France, RCS Paris 319 378 832. www.bnpparibas-am.com.

** “BNP Paribas Investment Partners” is the global brand name of the BNP Paribas group’s asset management services. The individual asset management entities within BNP Paribas Investment Partners if specified herein, are specified for information only and do not necessarily carry on business in your jurisdiction. For further information, please contact your locally licensed Investment Partner.