Managing fixed income portfolios in a rising rate environment
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Natixis Asset Management
Focus on the Fixed income investment division

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¹ - Source Natixis Asset Management – 31/12/2012.
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## EXECUTIVE SUMMARY

1. DECOMPOSING BOND RETURNS: THE IMPORTANCE OF CARRY
   
   A. The carry effect in the long run .................................................. 5
   B. Levels of spreads and the volatility effect: stylised facts ................. 7

2. AN ACTIVE PORTFOLIO MANAGEMENT IS ABLE TO BOOST THESE RETURNS
   
   A. Natixis AM methods for skills measurement and their implementation .... 12
   B. Core strategies .................................................................................. 12
   C. Strategies of diversification: negative correlation pays ....................... 14

3. OUR STRATEGY IMPLEMENTATION IN PORTFOLIOS FOR 2013
   
   A. Our view on European country levels and our core strategies .......... 16
   B. In the case of an increase in interest rates, what could be the right asset class for diversification? ............................................................. 18

CONCLUSION .......................................................................................... 21

BIBLIOGRAPHICAL REFERENCES .......................................................... 22
EXECUTIVE SUMMARY

The rising yield environment entails a real challenge for fixed income market participants. In the first section of this paper, we assess the importance of carry and the potential benefits of holding a diversified portfolio of fixed income instruments. The scale of diversification benefits is highly dependent on the (empirically non-linear) response of credit spreads to changes in the underlying term structure of risk-free rates. We hence provide an analysis of the conditional co-movement in spreads and yields.

In the second part of our study, we focus on active portfolio management and off-benchmark strategies to hedge rising rates. The adverse expected directional backdrop and low initial yield level raises the importance of capturing alpha opportunities, through asset allocation decisions as well as off-benchmark exposure. At Natixis Asset Management, we measure portfolio managers’ skills on each strategy as an input for optimal active risk budgeting. We provide a review of our skills on strategies ranging from core asset allocation to relative value within asset classes and off-benchmark exposures. In the last section, based on an assumed path for risk-free yields, we give our view on the main asset classes for 2013 and strategies that will be put in place.
DECOMPOSING BOND RETURNS: THE IMPORTANCE OF CARRY

Whatever the movements of interest rates and their impact on the marked-to-market of a portfolio, the carry still represents a source of performance on aggregate indices. Using long-term data series, we decompose the total returns on diversified fixed income bond indices in terms of carry\(^1\) and (marked-to-market) price changes. We then focus on a past episode of rising interest rates to illustrate the potential cushion provided by the coupon.

A. THE CARRY EFFECT IN THE LONG RUN

The following table (Table 1) exhibits the breakdown of total returns of the Barclays Euro Aggregate Index (BEA) and its 4 sub-indices over a long period (from 31/12/2003 to 31/12/2012). The data shows that coupon returns account for about 80% of the total return over the 9-year period under review. The result holds for all asset classes. This should not come as a surprise since the principal value at maturity of debt securities is not sensitive to growth conditions. Reversion to par hence tends to iron out price swings in the long run. Conversely, the capital value of real assets (such as equities, commodities, real estate) should reflect economic growth in the long run and hence capital gains should account for a larger share of total returns.

<table>
<thead>
<tr>
<th>ANNUALISED RETURN</th>
<th>EURO AGGREGATE</th>
<th>EURO TREASURY</th>
<th>EURO GOV RELATED</th>
<th>EURO SECURITISED</th>
<th>EURO CORP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Return</td>
<td>4.77%</td>
<td>4.76%</td>
<td>4.89%</td>
<td>4.64%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Price Return</td>
<td>0.5%</td>
<td>0.56%</td>
<td>0.82%</td>
<td>0.59%</td>
<td>-0.17%</td>
</tr>
<tr>
<td>Carry effect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coupon Return</td>
<td>4.42%</td>
<td>4.36%</td>
<td>4.3%</td>
<td>4.21%</td>
<td>4.82%</td>
</tr>
<tr>
<td>(with reinvestment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coupon Return</td>
<td>4.15%</td>
<td>4.11%</td>
<td>3.99%</td>
<td>3.93%</td>
<td>4.55%</td>
</tr>
<tr>
<td>(without reinvestment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) In this document, « carry » excludes the financing part. On the one hand, we consider that the Investor will have the cash, and on the other hand, considering the low level of Eonia (around 6 bps as of mid February 2013) the financing impact should nowadays be very low.
Managing fixed income portfolios in a rising rate environment

<table>
<thead>
<tr>
<th>TABLE 2: BARCLAYS EURO AGGREGATE INDEX (BEA) AND ITS 4 SUB-INDICES TOTAL RETURN BREAKDOWN OVER A SHORT PERIOD (From 30/09/2005 to 30/06/2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANNUALISED RETURN</strong></td>
</tr>
<tr>
<td>Total Return</td>
</tr>
<tr>
<td>Price Return</td>
</tr>
<tr>
<td>Carry effect</td>
</tr>
<tr>
<td>Coupon Return (with reinvestment)</td>
</tr>
<tr>
<td>Coupon Return (without reinvestment)</td>
</tr>
</tbody>
</table>

Source: euive.barclays.com

During the period under review, the sharp increase in risk-free yields had a significant negative impact on the performances of all asset classes. However, the carry component offset a large chunk of the capital loss. Despite the 179 bp rate increase, losses were between 0.38% (corporate bonds) and 1.24% (Treasury bonds). Obviously 179 bps represent a very sharp increase in rates which occurred in a higher rates period.

**Current market conditions**

As Chart 1 below shows, current sub-index yield levels are historically rather low. Low current yields may hence undermine the carry effect but should also generate less absolute increase in interest rates.

**CHART 1: HISTORICAL YIELD TO WORST FOR BARCLAYS EURO AGGREGATE INDICES**

Source: live.barcap.com
We now illustrate time to recovery for an instantaneous increase of 50 bps in 5-year German rates which is an average scenario (see section III) for a value of this rate at 0.65 mid February. Effectively, another way to express carry is the so-called “Time to Recovery”: the time needed to recoup losses stemming from an instantaneous change in interest rates. Table 3 exhibits the Time to Recovery for the five indices assuming a 50 bp up-shift in yields if we compute it today.

<table>
<thead>
<tr>
<th>Impact a 50 bps increase in the rate (bps)</th>
<th>EURO AGGREGATE</th>
<th>EURO TREASURY</th>
<th>EURO CREDIT CORP</th>
<th>EURO SECURITISED</th>
<th>EURO GOVERNMENT-RELATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to Recovery</td>
<td>1 year and 65 days</td>
<td>1 year and 113 days</td>
<td>312 days</td>
<td>311 days</td>
<td>1 year and 114 days</td>
</tr>
</tbody>
</table>

Considering these results, investors with a long investment period should have interest to invest in fixed income asset classes since we see that adverse effects tend to be compensated. We will see in subsequent sections that active portfolio management can amplify these results especially in the aggregate universe and strategies.

B. LEVELS OF SPREADS AND THE VOLATILITY EFFECT: STYLISED FACTS

Empirically it seems that an increase in interest rates is linked to a decrease in spreads and that this effect is stronger with a longer holding period. To illustrate these ideas, we focus our attention on some stylised facts regarding the joint behavior of the BEA index spreads and its constituent sub-indices spreads, and the 5-year German bond yield which has a similar duration to the BEA.

**The diversifying potential of the BEA indices: negative correlation of spreads and rates**

In what follows (Table 4), we investigate the nature of the dependence between the aggregate main indices. The variables are the spreads against the 5-year German rate except for the 5-year itself.

**TABLE 4: CORRELATION OF WEEKLY RELATIVE VARIATIONS OF OPTION-ADJUSTED SPREAD (OAS) AND RATES**

<table>
<thead>
<tr>
<th></th>
<th>BEA</th>
<th>TREASURY</th>
<th>CORPORATE</th>
<th>GOVERNMENT RELATED</th>
<th>SECURITISED</th>
<th>GER5Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEA</td>
<td>1</td>
<td>0.72</td>
<td>0.79</td>
<td>0.88</td>
<td>0.79</td>
<td>-0.39</td>
</tr>
<tr>
<td>Treasury</td>
<td>1</td>
<td>0.38</td>
<td>0.56</td>
<td>0.47</td>
<td>-0.31</td>
<td></td>
</tr>
<tr>
<td>Corporate</td>
<td>1</td>
<td>0.7</td>
<td>0.64</td>
<td>-0.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Related</td>
<td></td>
<td>1</td>
<td>0.83</td>
<td>-0.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Securitised</td>
<td></td>
<td></td>
<td>1</td>
<td>-0.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ger5Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Natixis AM
Managing fixed income portfolios in a rising rate environment

Over the period October 2004 - December 2012, we notice a negative correlation between weekly relative variations of option adjusted spreads (OAS) of the BEA index and its constituent sub-indices and weekly relative variations of the 5-year German bond yield, which confirms the diversifying effect of these asset classes. These findings are confirmed by a detailed copula analysis of dependence\(^2\). Unlike correlation, which is an average and linear measure, copulas are exhaustive measures of dependence whether linear or non-linear, average or extreme [see Embrechts, P. and al. (2002)]. Estimating the empirical copula binding OAS spreads and relative rate variations reveals the existence of a contagion effect between these two risk factors. Extreme rate movements are very likely to spill over into spread variations.

**CHART 2: DISTRIBUTION OF RELATIVE OAS MOVEMENTS CONDITIONAL TO RATE VARIATIONS**

<table>
<thead>
<tr>
<th>BEA unconditional distribution</th>
<th>BEA distribution conditional to Ger5Y tightening lower than its 95% percentile</th>
<th>BEA distribution conditional to Ger5Y widening higher than its 5% percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: Natixis AM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We can check on Chart 2 how spreads tend to counter-move with rates irrespective to any structure or assumption imposed by any model. The density of the BEA’s relative OAS variations is depicted with the dark line, whereas the red (resp. green) curve represents the corresponding density conditional to a rate move higher (resp. lower) than its historical 95% (resp. 5%) percentile.

As rates rise, the conditional density of spreads tends to move left toward more negative values. In particular, the median of the red curve is lower than the median values of both the dark and the green curves. These findings corroborate the negative dependence between spreads and rates over the estimation period and show that a large movement in rates has a higher probability of being accompanied by a large movement in spreads.

**The diversifying potential of the BEA indices increases with the investment horizon: the scale dependence of correlation between spreads and rates**

Market participants make different investment decisions under uncertainty depending on their respective time horizons, among others. Observed prices at a given time result from complex interactions of heterogeneous investors.

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Wavelets’ methods [Percival, D. and Walden, A. (2001)] provide an elegant way to detect the structure of economic and financial time series among different time horizons, and thus corresponding differences in investors’ behaviour.

Applying Mallat’s [Mallat, S. (1989)] wavelet-based multi-resolution analysis to our series reveals the scale dependent structure of our market. In particular, we find that the magnitude of the negative correlation between spreads and rate movements increases with time horizon. Hence, a longer investment horizon offers higher diversification potential.

**Lower actual correlations emphasise greater diversification opportunities**

Previous figures were obtained over a large time window of 8 years. However, local market regimes push correlations away from their global levels.

**CHART 3: 1-YEAR ROLLING CORRELATION OF WEEKLY RELATIVE VARIATIONS OF BEA’S OAS AND RATES**

From a dynamic perspective, we notice that correlations are not stable in time. Actual levels of the 1-year rolling correlations are lower than their average value, shown in Table 4, emphasizing greater diversification opportunities.

**Spreads are more sensitive to rate movements as spreads widen**

Correlation indicates a likely direction without quantifying the magnitude of the movement. Based on the above mentioned stylised facts, we investigate the sensitivity of the relative variation of OAS with respect to relative movement of rates using quantile regression routines. Unlike linear regression that yields an average estimate of sensitivity, quantile regression enables us to estimate the sensitivity according to the relative magnitude of spread movement.

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3: Interested readers may refer to Koenker, R. (2005) for a detailed presentation of quantile regression.
Managing fixed income portfolios in a rising rate environment

On Chart 4, we can easily check sensitivities of OAS to rate movements, when spreads widen.

**CHART 4: SENSITIVITY OF SPREADS TO RATE MOVEMENTS**

Chart 4 exhibits the increase, in absolute order, of negative sensitivity of BEA relative spread variations to German rate changes. Indeed, excepted for small (below the 30% quantile) relative spread variation where the sensitivity seems quite stable with the rate movement, the diversification effect increases with the amplitude of the spread variation. On a practical point of view, that means investors who expect a large change in spreads should benefit from a higher diversification effect between spreads and rates.

The previous results were describing effects in returns. But the risk effect is also important to analyse. The usual opposite effects of rates and spreads have an impact on the global volatility of indices with several asset classes as illustrated by Chart 5 below.

**CHART 5: HISTORICAL VOLATILITY OF BARCLAYS EURO AGGREGATE INDICES COMPARED TO 5-YEAR GERMAN RATE CHANGE**

This chart shows that historically the increase in interest rate periods was linked with a decrease of the volatility on aggregate indices. All these facts favour an investment in fixed income asset classes (rates and classes with credit spreads) in the long run.

We will show in the next section that active portfolio management can enhance these effects.
AN ACTIVE PORTFOLIO MANAGEMENT IS ABLE TO BOOST THESE RETURNS

Even if rates increase, active portfolio management will help to lower these impacts and moreover to turn this unfavourable market environment into alpha opportunities.

Fisher Black and Robert Litterman (1992) have pointed out the problems of building portfolios without taking portfolio managers’ views into account. Their famous paper proposes a methodology in order to build optimal portfolios while including the subjective feelings of the investor about relative values offered in different markets. One of the consequences is that portfolio weights become less sensitive to minor changes in expected returns, since the historical data are mixed with subjective views. Moreover, by adjusting the confidence in the views we can control how strongly the views influence the portfolio weights and which views are expressed more strongly.

With a similar point of view, Grinold (1989) and Grinold and Kahn (1999) define the “Fundamental Law of Active Management” (also known as “FLAM”).

**THE FUNDAMENTAL LAW OF ACTIVE MANAGEMENT**

This law expresses the information ratio (see Goodwin, T (1998)) in terms of two other statistics, the information coefficient and the “breadth”:

\[
IR = IC \sqrt{BR}
\]

where

- \( IR \) = information ratio
- \( IC \) = information coefficient ("skill")
- \( BR \) = independent bets per year ("breadth")

The breadth measures the number of independent bets the manager takes per year. It measures diversification. We define breadth as bets per year because the information ratio is an annualised quantity.

The information coefficient is a measure of manager skill. In particular, it’s the correlation of forecast and realised residual returns. It measures the portfolio manager’s ability to make the right decision.

As \( IR = \frac{\alpha}{TE} \), we have \( \alpha = TE \cdot SKILL \cdot \sqrt{BREADTH} \), which demonstrates a strong relationship between the skills and the alpha of the PM and shows that information ratios, the key to active management, depend on both skill and breadth.

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4. Clarke & al. (2002) introduced the transfer coefficient (TC), defined as the correlation between active weights and forecasted residual returns. Taking into account portfolio constraints, IR approximation now reads \( IR = IC \cdot TC \cdot \sqrt{BR} \). This yields lower IRs as TC is lower than one.

More recently, Ding (2010) derived a generalised version of the FLAM under some weak conditions distinguishing mainly cross sectional ICs from time series ICs and showed how Grinold’s original FLAM exaggerates IRs.
Managing fixed income portfolios in a rising rate environment

A. NATIXIS AM METHODS FOR SKILLS MEASUREMENT AND THEIR IMPLEMENTATION

Dynkin, and al. (2007) have developed a methodology based on the fundamental law of active management. It produces an optimal portfolio based on historically estimated volatilities and correlations and on investor views on different asset classes.

Skill is measured for different types of asset classes/strategies/risk factors and is fully integrated in portfolio construction.

This methodology is called Optimal Risk Budgeting with Skill (ORbS) and is now implemented at Natixis Asset Management with the help of Barclays Research, to precisely fit to our multi-strategy process and provide a model portfolio.

Among others, this methodology helps Portfolio Managers (hereafter “PMs”) to manage Euro Aggregate strategy.

For several years now, Natixis AM has stored every decision of weekly investment committees in order to compute the common skills of each strategy and to provide efficient data. Two kinds of data are provided in this document:

- The Information Ratio of each strategy computed as the excess return corresponding to the strategy divided by the volatility of the excess return
- The Hit Ratio\(^5\): the percentage of the positive excess return in the total weekly excess return when such a strategy has been implemented.

With these results and based on the FLAM, it is easy to have a good idea of the skills for each team and for each strategy. The results calculated by the engineering team are also used by the PMs, in order to focus more closely their bets and to encourage allocating the risk budget on the right strategy. These results are an output of the weekly committee but must be an input for the following one.

The most important alpha sources, picking excluded, in an aggregate process come from:

- The tactical management of the duration
- The core risk factor allocation (Govies/credit/securitised and government related)
- The strategies within the core asset (Sovereign Debt Allocation, credit allocation...)
- The diversification.

B. CORE STRATEGIES

The first strategy is our active and tactical management of the duration of the portfolio which allows to mitigate the impact of an increase in interest rates and to benefit from possible, and even small, decreasing phases.

There are two ways to benefit from a move of the interest rate curve:

- Shift: increasing or decreasing the overall sensitivity of the funds compared to the benchmark. In the case of decreasing interest rates, the PM should have a longer duration than the benchmark.
- Twist: the change of the curve is generally not uniform for all maturities. That’s why, with a constant global duration, it is possible to overweigh/underweigh the exposure along the curve.

From an historical standpoint, we have measured the skill of our team to make the right decision for those strategies. These strategies were played 69% of time.

\(^5\) It is important to keep in mind that the Hit Ratio cannot be analysed alone. For instance, making few good decisions with high returns can be better than making numerous good bets with low returns.
Managing fixed income portfolios in a rising rate environment

Results are provided below:

**TABLE 5: SKILLS FOR INTEREST RATE STRATEGIES: SHIFT AND TWIST**

<table>
<thead>
<tr>
<th>FROM APRIL 2008 TO DECEMBER 2012</th>
<th>SHIFT GDBR</th>
<th>TWIST GDBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualised Vol (bps)</td>
<td>33</td>
<td>14</td>
</tr>
<tr>
<td>Annualised return (bps)</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Information ratio</td>
<td>0.89</td>
<td>0.71</td>
</tr>
<tr>
<td>Hit ratio</td>
<td>53.8%</td>
<td>60.5%</td>
</tr>
</tbody>
</table>

Table 5 exhibits PMs capacity to take advantage of the changes in the curve. It is important to keep in mind that even in a case of a global increasing rate period, there are still some opportunities to implement tactical duration strategies:

- The volatility of the interest rate implies small increasing and decreasing periods whatever the global outlook.
- Rising rate periods often occur with a flattening of the curve as illustrated in Chart 6 (so called “bear flattening” situation).

**CHART 6: HISTORICAL EVOLUTION OF PRINCIPAL COMPONENT (PC)**

A second strategy, particularly efficient in a multi-asset environment, is to choose the allocation between the different risk factors driving the performance of the portfolio.

The first level of allocation is among the factors that are driving the main asset classes, which are part of the benchmarks. These core risk factors for an aggregate process are:

- The overall “Govies” OAS: the spread between the Treasury part of the benchmark and the reference curve (German curve in our case)
- The overall “gov related” OAS: the spread between the government related part of the benchmark and the reference curve
- The overall “agency” OAS: the spread between the agency part of the benchmark and the reference curve
- The overall “corporate” OAS: the spread between the corporate related part of the benchmark and the reference curve.
Managing fixed income portfolios in a rising rate environment

Exposures to these risk factors are measured in term of DTS (Duration Time Spread). PMs overweigh/underweigh each of the corresponding DTS in order to take bets on the core risk factors depending on the views they have. This active strategy is one the most important for an aggregate process. On the one hand, as shown in Table 6, our team exhibits strong skills for this strategy, and on the other hand 100% of the committees made allocation between the risk factors. This means that whatever the rate evolution, there are market opportunities for such a strategy.

**TABLE 6: NATIXIS AM CORE ALLOCATION SKILLS**

<table>
<thead>
<tr>
<th>FROM MARCH 2009 TO DECEMBER 2012</th>
<th>CORE ALLOCATION STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualised Vol (bps)</td>
<td>36.5</td>
</tr>
<tr>
<td>Annualised return (bps)</td>
<td>60</td>
</tr>
<tr>
<td>Information ratio</td>
<td>1.66</td>
</tr>
<tr>
<td>Hit ratio</td>
<td>60.5%</td>
</tr>
</tbody>
</table>

Source: Natixis AM

The third strategy is to exploit the second level of allocation, i.e. the allocation of the risk factors within an asset class. In the Treasury class it can be called Sovereign Debt Allocation. The objective is to create alpha by over/under exposure of a country in the Treasury part of the benchmark. Regarding corporate global allocation and on a global point of view, PMs take positions on macro sectors (financial/cyclical/defensives). These strategies are generally duration neutral. For both of these strategies the corresponding risk factors are the OAS and the exposure is measured with the DTS.

**TABLE 7: NATIXIS AM SOVEREIGN DEBT ALLOCATION SKILLS**

<table>
<thead>
<tr>
<th>FROM MAY 2009 TO DECEMBER 2012</th>
<th>SOVEREIGN DEBT ALLOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualised Vol (bps)</td>
<td>88</td>
</tr>
<tr>
<td>Annualised return (bps)</td>
<td>63</td>
</tr>
<tr>
<td>Information ratio</td>
<td>0.71</td>
</tr>
<tr>
<td>Hit ratio</td>
<td>51%</td>
</tr>
</tbody>
</table>

Source: Natixis AM

Table 7 exhibits an interesting information ratio for this strategy which has been implemented every week.

C. STRATEGIES OF DIVERSIFICATION: NEGATIVE CORRELATION PAYS

For a euro aggregate process, diversification represents all strategies based on a factor which is not a risk factor within the benchmark. Most of the time, the PMs seek to find alpha using the small/ negative correlations between euro aggregate risk factors and these diversification strategies. On a global point of view, Table 8 shows that the PMs have strong skills in betting in diversification strategies.
Managing fixed income portfolios in a rising rate environment

### TABLE 8: NATIXIS AM DIVERSIFICATION SKILLS

<table>
<thead>
<tr>
<th>FROM MARCH 2009 TO DECEMBER 2012</th>
<th>DIVERSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualised Vol (bps)</td>
<td>29</td>
</tr>
<tr>
<td>Annualised return (bps)</td>
<td>27</td>
</tr>
<tr>
<td>Information ratio</td>
<td>0.95</td>
</tr>
<tr>
<td>Hit ratio</td>
<td>57%</td>
</tr>
</tbody>
</table>

Source: Natixis AM

The usual diversifying strategies are the following:
- Investment in money market funds
- Investment in inflation-linked bonds for real rate or carry purposes
- Currency bets
- Cross country bets (US/UK/EUR/JPY)
- Investment in the high yield asset class
- Investment in bonds issued by emerging countries
- Positions in convertible bonds.

In the next section we describe the probable strategies to be put in place.

### 3 OUR STRATEGY IMPLEMENTATION IN PORTFOLIOS FOR 2013

Section I findings are stylised facts that we can qualify on an empirical basis. However, the context is very specific which can be illustrated by the magnitude of the market’s moves in January 2013.

### CHART 7: HISTORICAL DISTRIBUTION OF 5-YEAR GERMAN WEEKLY RELATIVE RATE VARIATIONS

We can check on Chart 7 that the early January rate hike can be qualified as an extreme, one at least from a historical perspective. The 5-year German bond yield sharply increased from 0.3% to 0.53% in one week. The corresponding relative movement is thus 73%.

This year, the fixed income department of Natixis Asset Management will – as usual – implement core and diversification strategies by using their views, the measurement of their skills for the different strategies and the implementation in the ORBS methodology.
Managing fixed income portfolios in a rising rate environment

The strategies will have to be adapted to this specific context.

The ECB’s unconventional response to the crisis resulted in massive excess liquidity in the banking system. Indeed banks took advantage of unlimited ECB financing to borrow more than a trillion euros from the Central Bank, which helped to assuage tensions in interbank markets in 4Q 2011. On our estimates, excess liquidity in the banking system reached a peak at 800bn just about a year ago. Since then, risk aversion has receded and banks have put some of their reserves at work, predominantly by purchasing debt securities ranging from government debt to credit and structured securities (ABS, Covered, bonds…). Excess liquidity is therefore gradually coming down. One factor contributed to a quickening of the decline in the level excess cash lately, namely the option for banks to start repaying LTRO\(^6\) loans after one year. A tightening in liquidity conditions is generally associated with higher yield levels and higher yield volatility. Furthermore, uncertainty stemming from the hung parliament situation in Italy in late February was also conducive of larger swings in bond yields. Towards year-end, we anticipate that yields will gradually drift higher as money market conditions improve and excess liquidity diminishes. Our central scenario is a value of 1.15% for the 5-year German rates at year end, within a range of [1% 1.30%]. The exact trajectory of yields will still be subject to unpredictable political events and possible ECB responses to rate variations.

Given our base scenario, we projected OAS levels by the end of 2013 in Table 9. These projections are obtained using the median path i.e. there is as much chance of having higher spreads as lower ones. We also confine our median projections by some lower and upper boundaries corresponding respectively to the 25% and the 75% percentiles.

<table>
<thead>
<tr>
<th>TABLE 9: PROJECTION OF SPREADS BY THE END OF THE YEAR 2013</th>
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<tbody>
<tr>
<td>LEVEL AS OF 28/12/2012 (%)</td>
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<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>BEA</td>
</tr>
<tr>
<td>Treasury</td>
</tr>
<tr>
<td>Corporate</td>
</tr>
<tr>
<td>Government Related</td>
</tr>
<tr>
<td>Securitised</td>
</tr>
<tr>
<td>Ger5Y</td>
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</tbody>
</table>

Source: Natixis AM

A. OUR VIEW ON EUROPEAN COUNTRY LEVELS AND OUR CORE STRATEGIES

Closer to the end of the year, we will probably have more visibility on a positive exit out of the political situation in Europe and out of recession. At that point, we will not hesitate in reducing global duration and considering money market investments.

On a more active management side for 2013 and concerning country allocation: the assumption of a solution to the sovereign crisis (OMT operations, growth improving) favours a scenario of convergence in spreads.

\(6\) LTRO: Long-Term Refinancing Operations. This refers to ECB loans to banks within its jurisdictions with a maturity of more than 1 month. We however focus on two special operations launched by the Central Bank to tackle acute funding problems at the end of 2011. The two operations, held in December 2011 and February 2012, were full-allocation and had a maturity of 36 months. A broad range of collateral was eligible allowing as much as 800 institutions to participate. A key feature of these loans is that banks can opt for early repayment (in part or in full) at any time after one year with a 1-week notice. Repayments are announced every Friday at noon by the ECB, for effective repayment on the following Wednesday.
Managing fixed income portfolios in a rising rate environment

**CHART 8: HISTORICAL BOND YIELD LEVELS IN EURO ZONE**

The auction calendar is particularly heavy for Spain and Italy this year but concentrated in the months of January, April, July and October, because of redemptions the rest of the year.

**CHART 9: 2013 MONTHLY FLOW OF FUNDS (NET ISSUANCE MINUS COUPONS IN EURBN)**

Our views on debts issued by euro countries express an anticipated change of spread versus Germany and are defined by country and for 4 maturity buckets. Generally speaking and as of end of January 2013, we have moderated positive views on debts issued by peripheral (Ireland and Portugal) and semi core (Spain and Italy) countries and are globally neutral on core country debts (Finland, Netherlands, Austria, France and Belgium).

These anticipations vary from one maturity bucket to another. Therefore, we have several overexposures on “high yielding” countries. These positions will clearly compensate a rise in yields for core countries.

Moreover, the choice of maturities at these auctions is essential for the debt management. If Spain chooses short-term maturities, the OMT “safety net” might guarantee their success but only postpone the deficits for a short period of time. Longer maturities would allow more visibility but would be totally dependent of the risk appetite from investors.

Therefore, curve positions will continue to be a source of alpha in a large number of countries within the Euro zone.

Regarding the allocation between asset classes: these last years, the most important contributor has been the allocation between sovereign debt and credit. In 2013, we anticipate that diversification strategies will be essential.
B. IN THE CASE OF AN INCREASE IN INTEREST RATES, WHAT COULD BE THE RIGHT ASSET CLASS FOR DIVERSIFICATION?

Among others, the diversification strategies that we think will be useful this year are:

- Investment in high yield
- Investment in convertible bonds
- Investment in emerging markets.

Today, the credit spreads have already narrowed significantly and do not offer a large potential outperformance versus sovereign debt. Both asset classes should benefit from our convergence scenario on peripheral spreads. On the other hand, when growth anticipations will rise, convertible bonds and high yield should become more attractive. Emerging debts seem quite expensive after having strongly performed these last years.

On the credit part, the two main diversification classes are high yield and convertible bonds.

Although performances were impressive in 2012 (more than 25% on high yield, about 18% in Euro convertibles), we are still positive on these two classes in 2013. We expect returns to be definitely lower than in 2012 but still consistent, particularly on a relative basis in a low interest rate context.

Convertible bonds benefit from credit and stock effects. Performance in 2013 should come firstly from the credit part: as we are expecting a spread tightening on the high yield market of about 100 bps, the credit part of the convertible should bring up to 4% of performance in 2013. Secondly, concerning equity, the trend should be bullish boosted by attractive valuations, resistant corporate results and decent dividend yield. This should contribute to convertible performance up to 4%. The volatility should remain low supported by a strong demand. Flows are also supportive as a clear interest for mid cap debt exists on the market and primary market should improve the universe diversification. As a consequence, our expectations concerning the convertible return in 2013 are at about 8%.

On the high yield market, despite a poor macroeconomic context, corporate results are resilient and leverage ratios are moderate. Technicals are significantly positive as the asset class is still attracting inflows, the primary market is dynamic and diversifying and risk aversion is improving. Valuations are definitely less attractive than in 2012 but still, with a yield of roughly 5.5%, there is still a premium offered compared to fundamentals (default rate). As a consequence we expect a spread tightening of about 100 bps over the year and a default rate around 2.75%. Given the present yield, the performance for the European market is estimated around 6-7% for 2013. With a strong correlation with stock market volatility, the high yield market is a very specific class among fixed income asset classes.

<table>
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<tr>
<th>TABLE 10: HISTORICAL CORRELATION BETWEEN EURO HY SPREAD AND OTHER MARKETS (01/2000 – 02/2013)</th>
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<tbody>
<tr>
<td>CORRELATION WITH EURO HY SPREAD</td>
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<tr>
<td>Delta GER 5Y</td>
</tr>
<tr>
<td>Delta EurSwap 5Y</td>
</tr>
<tr>
<td>Relative delta Euro</td>
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<tr>
<td>Delta VDAX</td>
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</table>

Source: Natixis AM

Structurally, convertible and high yield bonds have a low correlation to interest rates compared to other fixed income assets. These two asset classes should thus be relatively safe in case of a significant increase in interest rates. Any improving trend in equity markets will
Managing fixed income portfolios in a rising rate environment

benefit convertibles and compensate any stress on the credit yield. High yield spread is wide enough to moderate the impact of interest rate increases, in particular on B-rated issuers presently offering the most attractive yield. Thus, we think that for 2013, convertibles and high yield bonds offer an attractive risk return profile, diversifying a fixed income portfolio and limiting interest rate risk.

Emerging markets

As illustrated with the chart below, the return of the emerging market seems to be quite interesting during periods with increasing rates (here JPMorgan EMBIG div hedged in Euro: “JPEIGDEU Index” compared to the 5-year German interest rate). Thus this asset class would represent a good diversification investment during 2013.

From a more general point of view, when denominated in US dollars, an emerging bond (for the external debt) can be split into a pure emerging specific risk (called the spread: the total yield less the US bond yield with the same maturity) and US bond risk. The spread is the sum of a beta for the asset class as a whole and the country risk (liquidity and solvability risk of the emerging issuer). The US interest rate risk also affects this type of bond.

When markets begin to discount higher US interest rates, translating into higher US bond yields, the theoretical effect on our emerging bond can be:

- To replicate this rise by an identical rise in its absolute yield.
- A narrowing of its spread (risk premium) which can offset the US yield rise at various degrees.
- A widening of this risk premium on top of the higher US yields.

And, in general we observe that the higher the spread (specific emerging risk), the lower the effect of US interest rates. The rational is straightforward: higher spread means a lower US interest rate risk contribution to the total yield of the bond. Higher US yields tend to be associated with higher growth trends in the US, and given the share of the US in world output (roughly 40%), higher global growth, should also benefit growth for weaker countries. Thus, they should also experience some improvements of
their balance of payments and/or their debt ratio. Those improvements (a lower probability of default) mean that the risk premium asked for by an investor could narrow. Investors thus favour higher yielding bonds when such a background is expected.

Over the last years, we observed that spreads mainly narrowed when US yields were rising and widened during a “risk off” environment. We still expect, however, to see some spread tightening of the sovereign emerging high yield bonds. The spread between EM high yield and IG bonds is still attractive and started to narrow during the last quarter 2012. The yield ratio is still favourable to EM bonds. We stand at 2.5 times US yields.

A complementary strategy for us is also to diversify from the US dollar universe and allocate to the emerging sovereign local debt. Here, the yield of a local currency bond is mainly influenced by local factors: inflation expectations, confidence in monetary authorities, currency risk, currency flows, etc. We are thus exposed to local risk and currency risk.

The search for yields due to US policies has already pushed those local yields to low levels while the currency adjustment has been substantial. The depreciation of the US dollar against most of emerging countries over the past years has led to the adoption of some macro-prudential measures for some countries. The dilemma for those countries is how to stop/slow the appreciation of their currency. Thus, we need to select countries with the most attractive real yield and avoid those with already negative ones.

Volatility is higher for local markets and we can turn it into opportunities. This makes the argument to allocate to those markets even stronger.
CONCLUSION

We demonstrate through this research paper that investors with long-term investment horizons should be present in fixed income markets for several reasons:

- The time to recovery due to the carry effect
- The increasing-with-time negative correlation between rates and credit spreads
- The decrease in volatility of aggregate indices in periods of increasing interest rates.

Combining these econometric observations with a strong and efficient active management including diversification, market timing and quantitative approaches can create value even in an increasing rate environment.

Finally, considering the current environment and our views, we believe that investors may have interest this year to implement different strategies, among which:

- Duration and curve strategy
- Core allocation between main risk factors
- Allocation inside asset classes such as sovereign debts
- Diversification that we think will create value, particularly through high yield, convertible and emerging bonds.

Using an “aggregate” process will allow efficient deployment of these sources of performance.
BIBLIOGRAPHICAL REFERENCES


