

CORE MATTERS

Using models to generate excess returns on euro area government bonds

Florian Späte, Paolo Zanghieri
 December 17, 2024

Our Core Matters series provides thematic research on macro, investment, and insurance topics

- Markets' pricing of the risk premium on sovereign issuers is volatile and subject to various drivers. Splitting the contribution of macro and fiscal fundamentals from that of volatile market perceptions can help find profitable buying and selling opportunities.
- We develop a framework to estimate the fair value of government bond spreads for Italy, France, and Spain. The estimate is based on fiscal and macroeconomic fundamentals only.
- The model suggests that the BTP spread is currently close to fair value, as the negative perception of the country has abated. The rise in the OAT spread is tracking deteriorating fundamentals.
- The model also allows to identify the drivers of the spread evolution. e.g., to quantify how much of the compression of Italian and Spanish spreads is due to the reduction in debt/GDP and lower unemployment after the pandemics.
- Ownership structures also matters. Italian BTPs have traditionally been held by domestic investors and the ECB's purchases have mainly replaced foreign investors. OATs' share of foreign investors has recently risen to over 50% as the ECB has gradually withdrawn amid its Quantitative Tightening (QT).
- Not just spread levels, but also spread volatility matters for investors. While the volatility of the OAT/Bund spread has traditionally been significantly lower than that of the BTP/Bund and Bono/Bund spreads, they have recently moved noticeably closer together. A methodology derived from volatility to assess market participants' preferences shows that risk aversion towards OATs is at a very high level, in contrast to BTPs and Bonos.
- In general, both volatility and yields have fallen across all maturities over the past year. Short-term Spanish Bonos currently offer a very good risk-adjusted yield, which even exceeds that of German Bunds on both counts.
- Finally, we show that even simple systematic investment strategies based on macroeconomically derived fair values can generate excess returns, without increasing volatility.



1. The Model	2
2. Use of the model	3
3. Decomposition of the spread	4
4. Ownership in assessing EA non-core government bond markets	5
5. Rising risk aversion towards French OATs	6
6. Italian and Spanish bonds increasingly attractive as volatility falls	7
7. Simple strategy to deliver excess return.....	8
8. Conclusions	9

The reduction of ECB bond holding is likely to cause increased volatility in bond yields and therefore in sovereign spreads. From an investor's point of view it becomes important to understand and try to quantify how much of this volatility derives from the evolution of fundamentals, which have an important bearing on the long term path of borrowing cost, as opposed to possibly more fickle market perception and risk appetite. This report provides the fair value assessment for the risk premia on 10-year government bond yields of France, Italy, and Spain (vs. German Bunds). Our measure of fair value focuses on economic fundamentals, including the current condition of public finances, the balance of payments and the prospects for growth and inflation. The methodology also enables us to quantify the drivers of the spreads. The setup can be used for trading strategies, and we show that considering the estimated fair values generates excess returns.

A fundamentals-only fair value to assess mispricing and likelihood of ECB intervention in times of stress.

On the policy side, the fair value of EA sovereign yields is linked to the new (and untested) TPI mechanism, which allows the ECB to step in with bond purchases if “unwarranted, disorderly market dynamics”¹ leads to a spike in a country's sovereign spreads, threatening the functioning of monetary policy in the euro area (EA). Having a fundamentals-based

view of the spread to be used as a benchmark can help assess the likelihood of an intervention in times of stress.

1. The Model

Following the set-up introduced by the Bank of Italy², we define the fair value of the spread as the one consistent with a country's macroeconomic and fiscal fundamentals. Spreads are determined by fundamentals related to growth, inflation, fiscal and external balances. In the model approach, we also control for risk appetite, which in turn has global and country-specific components. Therefore, in the econometric estimation we model the spread with the following specification:

$$spread_t = \alpha + \beta_1 X_t + \delta_1 Z_t^{dom} + \delta_2 Z_t^{global} + \varepsilon_t$$

With

X_t : macro and fiscal fundamentals,

Z_t^{dom} : domestic component of risk appetite

Z_t^{global} : global component of risk appetite

In what follows we consider the estimate based on fundamentals, defined as:

$$\widehat{spread}_t = \hat{\alpha} + \hat{\beta}_1 X_t$$

An alternative takes also in consideration the domestic component of the risk appetite:

$$\widehat{spread}_t = \hat{\alpha} + \hat{\beta}_1 X_t + \hat{\delta}_1 Z_t^{dom}$$

These two proxies can be used for different purposes. The first aims to compare the pricing with what would result ignoring country-specific market perceptions and focussing only on actual or expected macro and financial outcomes, the second seeks to assess the gap with a country's actual and perceived risk. We will focus on the first, leaving the description of the second to the appendix.

We use debt-to-GDP as a proxy for fiscal fundamentals. Given the forward-looking component of financial prices, we consider 1 and 5 years ahead consensus forecasts for GDP growth and inflation, taken from Bloomberg. We add the unemployment rate as a measure of the constraints for fiscal consolidation. To assess the role of external imbalances we use the ratio between a country's unit labour costs with respect to Germany as a proxy for cost competitiveness and the current account balance.³

variables for all the countries by running a LASSO algorithm and then we further refined using a general to specific procedure on an equation-by-equation basis.

¹ More details on the program can be found [here](#).

² The original paper can be found [here](#).

³ Other variables could be used. Such as actual growth or inflation and total or primary budget balance. We preselect a common set of

The domestic component of risk appetite is a measure of currency redenomination risk of the debt, as fiscal risk is already controlled for by using debt as explanatory variable. This is measured by the difference between the 5yr CDS in USD and the corresponding EUR one, as a ratio to Germany's⁴. The global component relates to risk in the global bond space. For that we use the Excess Bond Premium (EBP) on corporate bonds computed by the Federal Reserve⁵, as IG credit is often seen as an alternative to EA peripheral paper. Moreover, the EBP is a widely used measure of potential financial distress.

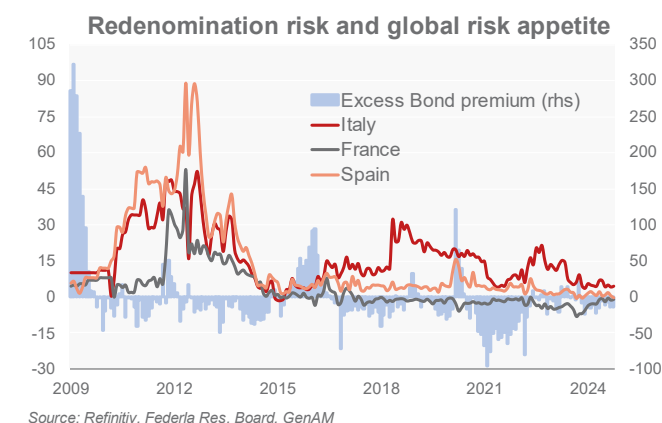
expected, Italy has the largest beta on redenomination risk, given its large debt and history of political instability. Conversely, the sensitivity of the spread to global risk appetite (proxied by the EBP) is directly proportional to credit risk, with Italy's beta being nearly three times that of France.

2. Use of the model

We use the results of the estimation in two ways. First, we calculate the fundamentally backed risk premium over Bunds and a confidence interval. Second, we use the coefficient to decompose the evolution of these spreads and assess the relative strength of the drivers.

Construction of the fair value spread. We use the estimated beta related to the macro and financial fundamentals. To account for model uncertainty, instead of producing a single estimate of the fair value we get a distribution using a block bootstrapping algorithm.⁶

French spread widening related to fundamentals. BTP spread compression due to improved risk perception.



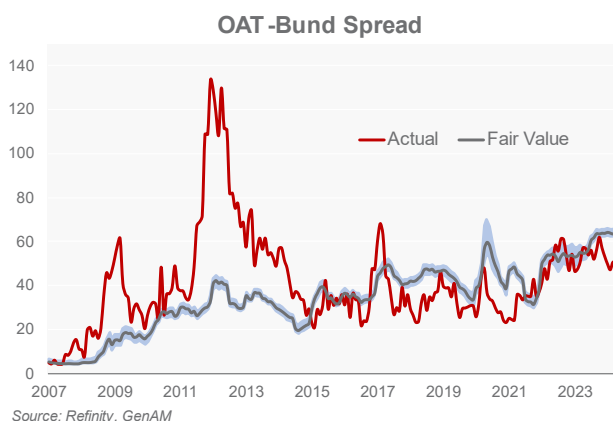
The table below shows the results of the estimation. Long-term growth expectations and unemployment are important for countries such as Italy and Spain which have underperformed in terms of trend growth and labour market. As

For French OATs our approach shows that between the debt crisis and the COVID outbreak the OAT spreads undershot the level implied by macro and fiscal data. This may be due

Drivers of the 10 yr spread over Bund			
	France	Italy	Spain
Constant	-105.04 [17.822]**	-451.63 [117.852]**	-423.85 [59.784]**
Debt to GDP	0.81 [0.162]**	2.75 [0.657]**	1.85 [0.296]**
1 yr ahead Growth	-2.19 [0.802]**	-6.13 [2.133]**	-10.99 [1.777]**
5 yr ahead Growth		-58.61 [23.919]*	-34.26 [8.335]**
5 yr ahead Inflation	32.38 [4.976]**	48.81 [19.293]*	119.27 [18.829]**
Unemployment		18.61 [3.204]**	11.15 [1.153]**
Current account to GDP	-12.22 [4.825]*	-19.52 [4.685]**	-8.52 [2.093]**
ULC competitiveness	834.81 [195.896]**	3055.37 [926.417]**	2147.88 [406.490]**
Redenomination risk	2.17 [0.117]**	5.15 [0.345]**	3.72 [0.234]**
Excess Bond Premium	9.00 [1.905]**	24.25 [7.931]**	18.60 [5.036]**
R-squared:	0.73	0.75	0.92
F-statistic:	68.32	60.36	223.63
Prob(F-stat):	0.00	0.00	0.00

Std. Err. In brackets: * 5% Significance, ** 1% Significance

⁴ See this [blog post](#) and the references therein for a detailed description of this measure of redenomination risk. The original paper from the Bank of Italy uses as a proxy the ISDA basis defined as the difference between the CDS premia defined by the 2003 ISDA protocol and those defined by the 2014 ISDA protocol where the latter explicitly considers the redenomination of the debt in a different currency as a credit event which triggers a settlement under the CDS contract. We prefer our simpler measure due to data availability. Robustness checks on this variable are available on request.

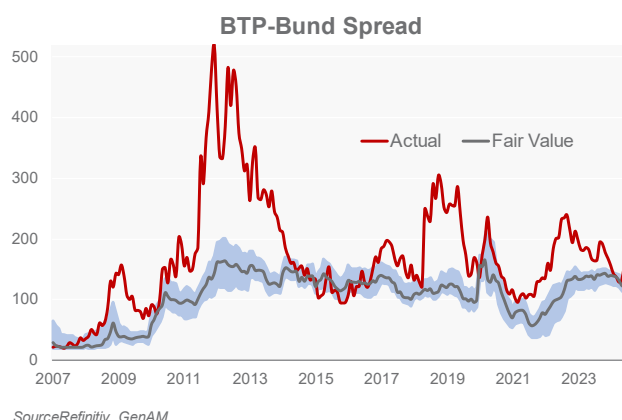


to low-risk perception and possibly, other factors that we do not model directly (like strong demand from central banks).

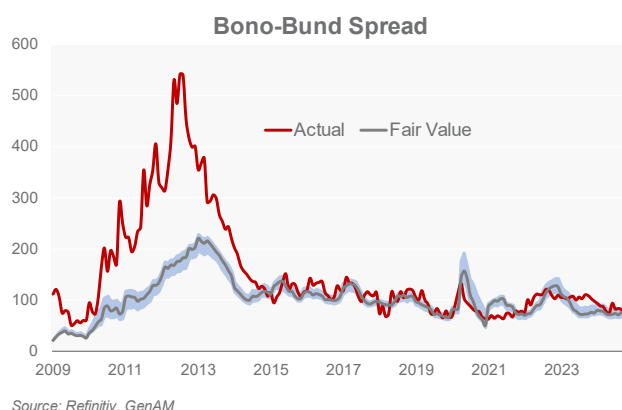
⁵ The EBP is a component of corporate bond credit spreads that is not directly attributable to expected default risk and. It is meant to provide an effective measure of risk appetite in the corporate bond market. More details on its construction and ability to predict stress can be found [in this note](#).

⁶ We estimate different regressions, each time excluding a sample of consecutive observations equal to 10% of the total. Therefore, we can build a confidence interval around the most recent estimate.

The situation has changed radically since 2022. The rise in the spread reflects closely the deterioration in fundamentals, and market perception has become essentially neutral. The extreme spread widening since June is due to political uncertainty. Accordingly, it is not reflected in the model based on macroeconomic variables. Given that the instability is likely to continue for the time being, we remain cautious from a tactical point of view.⁷



On the contrary, for Italy, market perceptions have driven a large positive wedge between the actual and fair value BTP/Bund spreads, with the gap widening in any period of tension, be it domestic (the aggressive fiscal expansion an-



nounced by the Lega M5S government in 2019) or global (the pandemics and the inflation squeeze following the invasion of Ukraine). This situation has reversed thanks to regained political stability and a more prudent fiscal policy⁸. The current spread is therefore consistent with fundamentals.

⁷ For more details, see also [here](#).

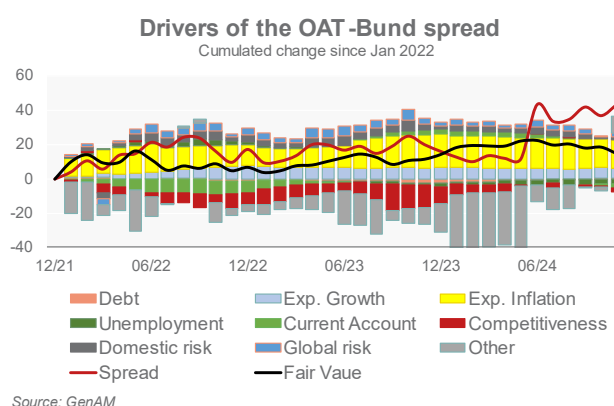
Spain: Both the spread and its fair value estimate have been stable after the GFC, reflecting improving fundamentals and low political instability which fed through low perceived risk.

3. Decomposition of the spread

In addition, we use the estimated coefficients to quantitatively assess the impact of each explanatory 'fundamental' variable in deriving the spread. In what follows we use this feature to illustrate the drivers of the spreads during the last two year. In Appendix 2 we show a similar exercise for other periods.

Lack of debt consolidation prevents French spreads from falling, better fiscal and labour market metrics help BTP and Bonos.

In France, as in the other countries, the spread widening since 2023 is due to a deterioration in the growth and inflation prospects. However, in Italy and Spain, this was offset by the improvement of the debt-to-GDP, which has been absent in France. Non-modelled factors (namely the fragile election outlook after the European and national election) are responsible for the spike observed since last summer.

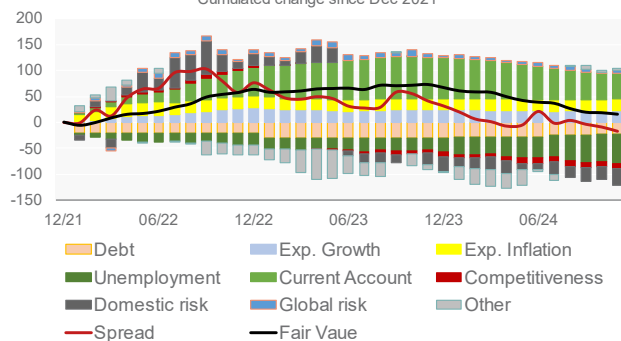


In Italy, the evolution of the spread during the last two years was driven by the deterioration of the current account (due to the energy shock and lower global trade) and the macro-outlook, almost entirely offset by the impact of lower debt and the improvement of the labour market. The domestic risk component added to the spread in 2022 until mid-2023, with the uncertainties related to the new government, but afterwards it contributed to its fall given the decrease in perceived political risk (also visible in the "other" component).

⁸ In line with the use of growth and inflation expectations one should use the consensus forecasts for the fiscal metrics, which are however unavailable.

Drivers of the BTP-Bund spread

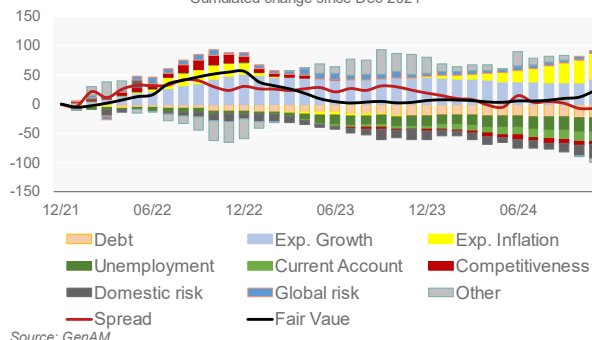
Cumulated change since Dec 2021



In Spain, the initial widening of the spread was driven by deteriorating growth expectations and the negative energy shock on the current account. Subsequently, the situation improved thanks to the fall in the unemployment rate and the return to surplus of the current account.

Drivers of the Bonos-Bund spread

Cumulated change since Dec 2021

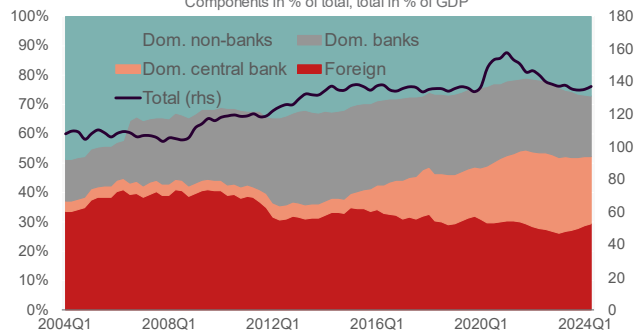


4. Ownership in assessing EA non-core government bond markets

Apart from fundamental drivers discussed thus far, the structure of ownership matters too. Due to the signalling effect and varying risk aversion of different investor groups, it is important to know who the holders of government debt are. In the long term (the data goes back to 2004⁹), developments appear particularly relevant when the risk assessment of market participants regarding a country changes and/or when unforeseen events lead to market turbulence.

Italy: Holders of Government Debt

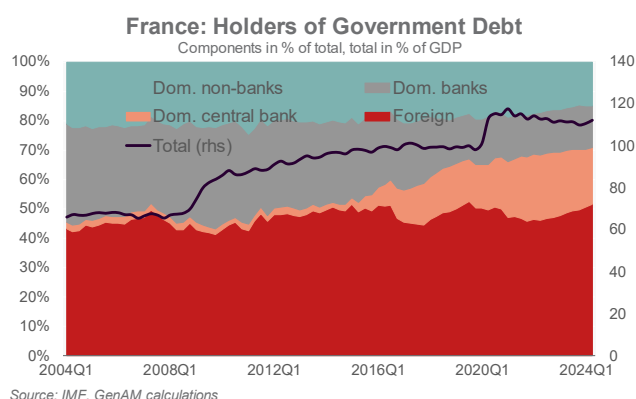
Components in % of total, total in % of GDP



Ownership structure is vital in times of financial turmoil.

In Italy, the domestic sector holds the largest share of government debt. The share peaked at 65% in 2012 and currently (as of 06/2024) almost half of all BTPs are still held by domestic banks and non-banks. The successful retail government bond issuances of recent years confirm that the domestic sector is a decisive factor for the demand for BTPs. In addition, the ECB holds a substantial proportion of outstanding Italian government debt. Since 2010, the ECB has intervened massively in the Italian government bond market through the Securities Market Programme, the Asset Purchase Programme, and the Pandemic Emergency Purchase Programme, holding up to 26% of all outstanding Italian government bonds. Although the ECB began Quantitative Tightening (QT) in 2023, it currently still holds almost a quarter of all BTPs (23%). Hence, domestic investors and the central bank together hold more than 70% of all bonds. This is significant as they are deemed to be less reactive in turbulent market phases. By contrast, the share of foreign investors has fallen steadily since 2010 from more than 40% to less than 30%. This is by far the lowest share in the EA and represents an important safety anchor in turbulent market phases.

⁹ See <https://www.imf.org/~media/Websites/IMF/imported-datasets/external/pubs/ft/wp/2012/Data/wp12284.ashx>



The evolution of investors in French bonds is quite different. Traditionally, the proportion of foreign investors is much higher, and it increased again at the beginning of the EA debt crisis, as French OATs were considered core bonds while still offering a decent premium over Bunds. At the end of June 2024, the share of foreigners was still close to peak at 52% (the decline since then is not yet reflected in the IMF data), a record high in the EA. The main effect of the ECB's purchases has been to reduce the share of domestic investors (especially domestic banks). At 14%, they currently hold significantly less than in 2010 (34%). The ECB's cautious approach to reducing its portfolio is also evident in France. Despite the QT, the ECB's share is still 19% (down from 22% at peak). The high proportion of foreign investors makes OATs vulnerable to a deterioration in sentiment, as foreign bondholders are particularly price- and risk-sensitive and more likely to reduce their investments when the news flow (e.g., political uncertainty) deteriorates.

5. Rising risk aversion towards French OATs

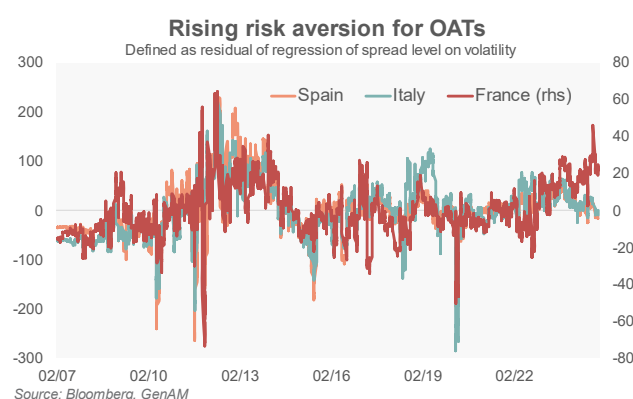
In addition to the spread level, the volatility of the spread is another key factor for investors. This risk indicator differs between issuers and over time. For the period since 2007, the annualised 30-day volatility of the 10-year OAT spread is just under 32%, the 10-year Bono spread over 70% and that of the 10-year BTP spread even over 86%.¹⁰ However, it is worth noting that the current volatility of the OAT spread of just under 40% is well above the historical average, while the spread volatility of Spanish and Italian bonds is only around half the historical volatility. The volatility of the OAT spread has been on a slight upward trend for about a year, and it has increased further after the European elections in June. As a result, the

30-day annualised volatility of French spreads is currently higher than that of Spanish spreads.

In addition to looking purely at volatility, which is ultimately a static risk indicator, the question arises as to how market participants' risk aversion has developed. To determine this, we use the spread volatility as an explanatory variable to the actual spread. We interpret the residual, i.e., the spread development not explained by volatility, as the risk aversion of market participants. On average, the residual is zero for all markets. If the actual spread deviates upward from the fitted value, market participants seem to be currently more risk averse than average (and vice versa).

Market participants defensive on OATs.

Not surprisingly, risk aversion measured this way shows a high degree of synchronisation across markets. The chart below shows that risk aversion was generally very high during the EA debt crisis. National specifics are also reflected: in the run-up to the French presidential election in 2017, risk aversion among market participants increased only for OATs. In spring/summer 2019, the coalition crisis in Italy (Lega/Movimento 5 Stelle) was reflected in an increase in risk aversion, which was limited to BTPs.



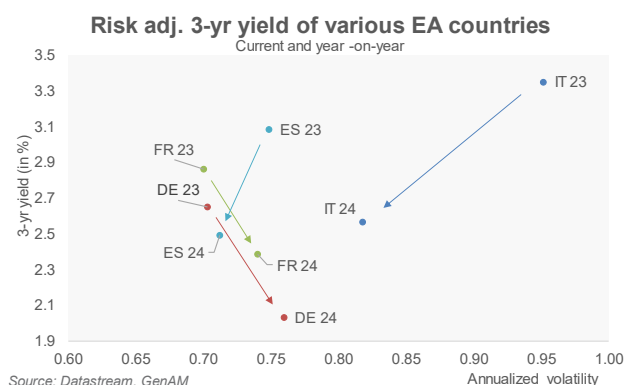
It is worth noting the divergence in recent months. Risk aversion towards French OATs has steadily increased since 2023. At peak, risk aversion reached a level second only to that at the time of the EA debt crisis. Although sentiment has brightened slightly since the end of September (and risk aversion has fallen), it is still at a relatively elevated level. This is even more remarkable given that Italian and especially Spanish bonds have escaped the negative trend. Indeed, risk tolerance is currently not only higher than historically, but even

¹⁰ In statistical terms, it is $\text{StdDev}(\text{abs daily change in spread}) \times 250 \sqrt{0.5}$.

higher than before the European elections in June. This illustrates the idiosyncratic nature of the crisis in France. Both Italian and Spanish bonds currently seem to be benefiting from a substitution effect triggered by risk aversion towards French OATs. Until the French crisis is resolved, and risk aversion returns to normal, this effect is likely to continue.¹¹

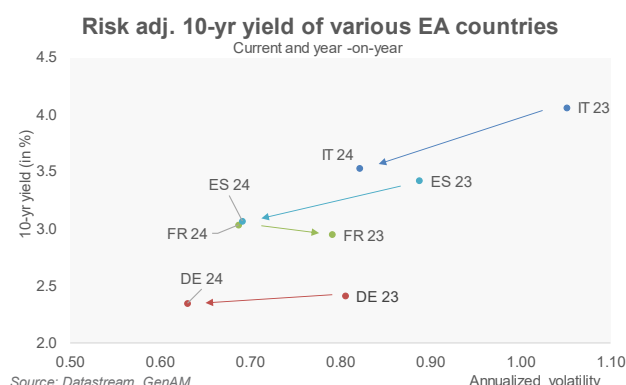
6. Italian and Spanish bonds increasingly attractive as volatility falls

Let us now focus on risk-adjusted returns. To make the different bonds comparable on a risk-adjusted basis, we compare the yield with the annualised volatility. With a very few exceptions, both the volatility and yield of all the bonds considered here for all tenors has fallen recently (see charts below).



For short-term bonds (3 years), Spanish bonds are the first choice in terms of risk-adjusted return. Not only do they offer comparatively high yields, but they also have the lowest volatility of all the bonds covered in this maturity segment. Italian bonds can offer a small yield pick-up but with increased volatility. 3-year Bunds have become very unattractive as their volatility have surged since end of September. The risk-adjusted yield of short-dated French bonds have deteriorated year-on-year, making them less attractive.

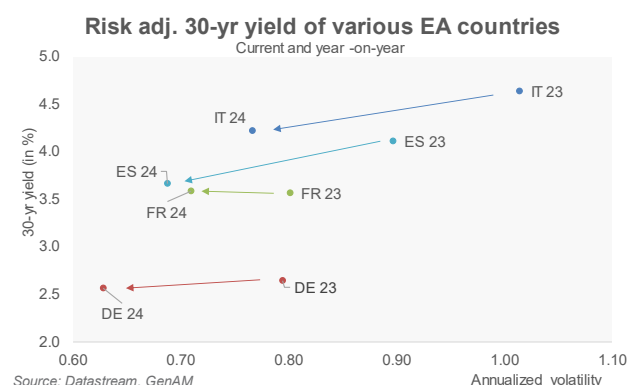
In general, the risk-adjusted yield of 10-year bonds has risen year-on-year. A slightly lower yield level is more than offset by a lower volatility. While 10-year French OATs were an essential part of a bond portfolio a year ago due to their excellent yield/volatility ratio, 10-year Bunds are currently attractive to safety-oriented investors due to their low volatility. Spanish and Italian bonds are suitable as yield enhancers.



The yield/volatility ratio also improved during the year for very long-dated bonds. A combination of German Bunds with Italian and/or Spanish bonds offers a better yield/volatility ratio than investing solely in 30-year Bunds. In a direct comparison, Spanish very long-dated bonds are superior to French bonds due to the slightly higher yield level combined with lower volatility.

Bonds are becoming key in portfolio construction.

Overall, political instability in France, reflected in higher volatility, has significantly reduced the relative attractiveness of an OAT investment across all maturities. Bunds remain a haven of stability, at least for long and very long-term bonds. By contrast, Italian and Spanish bonds have increasingly come into focus. Their higher risk-adjusted yields allow them to increasingly form part of a risk-optimised portfolio.



¹¹ Irrespective of this, the question naturally arises as to how long the crisis in France can remain idiosyncratic given the systemic importance of France for the EA.

7. Simple strategy to deliver excess return

The question now arises as to the extent to which the fair values we have derived for EA non-core government bond spreads can be used to generate an excess return. To this end, we set up a simple investment strategy. Specifically, we use the fair value time series to generate a monthly signal. If the actual spread (say Spain – Germany) at the end of the month is at least one standard deviation above the fair value determined, the strategy overweights the 10-year bonds of the corresponding country (Spain). If the actual spread is at least one standard deviation below the fair value, 10-year Bunds are overweighted. Specifically, an upward deviation in the actual spread of between 1 and 2 standard deviations will result in the purchase of 75% of 10-year bonds of the corresponding country (Spain) and only 25% Bunds. If the actual spread deviates by more than 2 standard deviations, only bonds of the corresponding country (Spain) will be purchased (et vice versa). The benchmark strategy always invests equally in 10-year Bunds and 10-year bonds of the respective country each month (Spain), regardless of the market situation. Accordingly, the strategy may outperform (or underperform) if the fair value we estimate differs significantly from the market value.

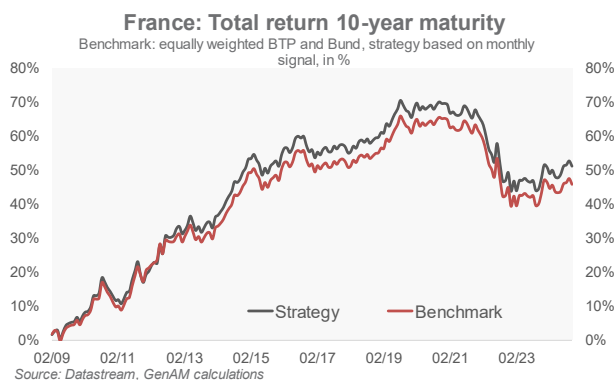
Macroeconomic models can generate excess return.

The underlying idea thus corresponds to the idea explained above: whenever the actual spread level on the financial market is “too high” and not in line with the macroeconomic fundamental data, the fundamentally riskier but also higher-yielding bonds from EA non-core countries are overweighted. If the actual spread is below the fair value (EA non-core bonds are considered too dear), mainly German government bonds are bought.¹²



The investment strategy outperformed the long Italy one by more than 23% since 2009 to date (see chart on the front page). While the benchmark (50% BTPs and 50% Bunds) would have achieved a cumulative performance of 57%, the presented strategy can generate a performance of more than 80%. During the EA debt crisis (2011/2013), the coalition crisis in Italy (2018/2019) and in the months following the start of the war in Ukraine, the strategy only bought Italian bonds as the spread was significantly above fair value. There were certainly months, particularly in 2014-2016, when the actual spread was below fair value. However, at no point were the mispricing so pronounced that BTPs were effectively underweighted. Over the course of the last year, the fair value spread has fallen by almost 40 bps and is now just over 100 bps. The current signal therefore implies an equal weighting of BTPs and Bunds.

For Spain, the strategy generated an excess return of just over 6% over the period (63% vs. 57%). Overall, the mispricing of Spanish bonds is much lower than that of Italian bonds. Only in the years 2010 to 2014 were there very significant deviations of the actual spread from the fair value. Accordingly, the strategy was overweight in Bonos during this period and outperformed the benchmark. For a few months in the summer of 2020, the strategy was even underweight Bonos relative to Bunds, as the fair value was well above the actual spread.



In the case of France, the outperformance of the strategy is even slightly smaller (51% versus 46%). Over the entire period under review, French OATs are relatively rarely overweighted relative to Bunds. Only during the EA debt crisis does the strategy suggest a longer-term overweighting of OATs. By contrast, between 2017 and May 2024, the actual value is mostly lower than the fair value and the strategy often overweightes Bunds during this period. Only in recent months

¹² To rule out a potential in-sample bias, we tested this strategy also with 60-month rolling regression, with no qualitative changes.

has this been reversed (although the mispricings are not massive) and for a few months at least, OATs have been overweighted again.

Generally, the outperformance of the recommended strategy is not accompanied by higher volatility. In fact, in all three cases the volatility is slightly lower.

8. Conclusions

We have shown that the actual spread levels deviated significantly from the fair values based on macroeconomic data, particularly during the EA debt crisis and in times of political turbulence. However, except for France, fair values have recently declined and are now close to the actual spread levels. Additionally, we go beyond a purely macroeconomic analysis and analyse the structure of the bond ownership. The developments in French OATs in recent months have shown that this can have a significant impact on the actual evolution of spreads.

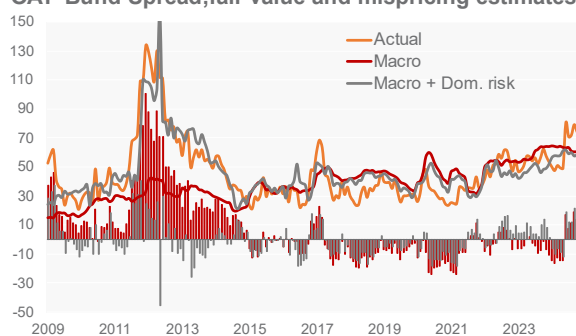
We demonstrate that, in addition to pure spread movements, volatility also plays a significant role in assessing a sovereign market. Italian and Spanish bond markets have clearly caught up with the French and are increasingly attracting investor attention. Finally, we point out that simple investment strategies based on macroeconomically derived fair values are fundamentally capable of generating excess returns.

Further research is suggested to develop more sophisticated strategies. In addition, strategies that are not based on macroeconomic models but, for example, on the turning point in the ECB's interest rate cycle also appear promising.

Appendix A: An alternative definition of the fair value spread

The charts below show the estimates of the fair value spreads calculating using only fundamentals and adding the domestic dimension of perceived risk, and the corresponding gap between the actual value of the spread, for OATs and BTPs. For France, the difference between the two is not large after 2017. It matters, on the contrary for Italy, especially in periods of high uncertainty, e.g., during the M5S/Lega government and the energy crisis related to the Ukraine invasion. The fair value, which included domestic perceived risk, tracks the actual spread very closely, which limits its usefulness for investment strategies as mispricing is minimal.

OAT-Bund Spread, fair value and mispricing estimates



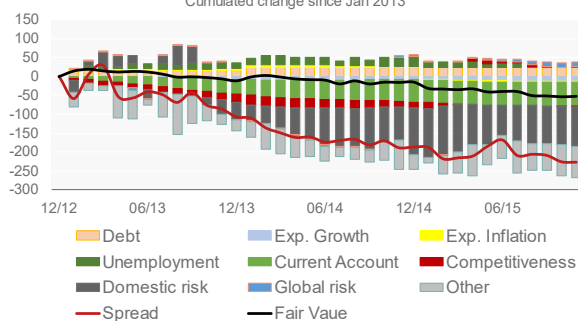
Source: Refinitiv, GenAM

Appendix B: Tracking the BTP spread decomposition in 2013-2015

The framework we develop explains the 167-bps reduction in the BTP-Bund spread between January 2013 and December 2015 as the result of mostly a decrease of the perceived domestic risk, as shown by the much stronger descent of the actual spread with respect to its fundamentals-based value. The latter was driven down by the improvement in competitiveness the external balance. All this more than offset the negative impact from the worsening growth and employment metrics following the fiscal retrenchment and the increase in debt.

Drivers of the BTP-Bund spread

Cumulated change since Jan 2013



Source: GenAM

BTP-Bund Spread, fair value and mispricing estimates



Source: Refinitiv, GenAM

 Imprint

Issued by:	Generali Asset Management S.p.A. Società di gestione del risparmio, Research Department
Head of Research:	Vincent Chaigneau
Head of Macro & Market Research:	Dr. Thomas Hempell, CFA
Team:	Elisabeth Assmuth Research Operations Elisa Belgacem Head of Cross-Asset Quant & Dev, Senior Credit Strategist Radomír Jáč GI CEE Chief Economist Jakub Krátký GI CEE Financial Analyst Michele Morganti Head of Insurance & AM Research, Senior Equity Strategist Vladimir Oleinikov, CFA Senior Quantitative Analyst Dr. Thorsten Runde Senior Quantitative Analyst Dr. Christoph Siepmann Senior Economist Dr. Florian Späte, CIIA Senior Bond Strategist Guillaume Tresca Senior Emerging Market Strategist Dr. Martin Wolburg, CIIA Senior Economist Paolo Zanghieri, PhD Senior Economist
Head of Insurance and AM Research:	Michele Morganti
Team:	Raffaella Bagata Research Operations Alberto Cybo-Ottone, PhD Senior Economist Mattia Mammarella Research Analyst Roberto Menegato Senior Insurance Research Analyst Antonio Salera, PhD Economist, Pension Expert Federica Tartara, CFA Senior Economist
Head of Credit Research:	Vivek Tawadey

This document is based on information and opinions which Generali Asset Management S.p.A. Società di gestione del risparmio has obtained from sources within and outside of the Generali Group. While such information is believed to be reliable for the purposes used herein, no representation or warranty, expressed or implied, is made that such information or opinions are accurate or complete. The information, opinions estimates and forecasts expressed in this document are as of the date of this publication and represent only the judgment of Generali Asset Management S.p.A. Società di gestione del risparmio and may be subject to any change without notification. It shall not be considered as an explicit or implicit recommendation of investment strategy or as investment advice. Before subscribing an offer of investment services, each potential client shall be given every document provided by the regulations in force from time to time, documents to be carefully read by the client before making any investment choice. Generali Asset Management S.p.A. Società di gestione del risparmio may have taken or, and may in the future take, investment decisions for the portfolios it manages which are contrary to the views expressed herein. Generali Asset Management S.p.A. Società di gestione del risparmio relieves itself from any responsibility concerning mistakes or omissions and shall not be considered responsible in case of possible damages or losses related to the improper use of the information herein provided. It is recommended to look over the regulation, available on our website www.generali-am.com. Generali Asset Management S.p.A. Società di gestione del risparmio is part of the Generali Group which was established in 1831 in Trieste as Assicurazioni Generali Austro Italiane.