The data challenge

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Integrating ESG into fixed income investments

The impact of ESG considerations: the data challenge

We believe that Environmental, Social and Governance (ESG) issues can have a material effect on company fundamentals, in terms of both opportunities and risks, and that ESG analysis can highlight latent risks and provide early warning signals of a potential deterioration of company fundamentals.

It also seems common sense to think that companies with good governance, responsible social policies and a sustainable approach to the environment will tend to fare better over the long term. Yet this remains difficult to quantify.

In this paper, we take a hard look at the existing academic and empirical research to determine the materiality of ESG impacts on companies' financial and economic performance, in the short and long terms.

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The data challenge – Agreeing on standards and measures, tracking ESG efficiency

It isn't easy to demonstrate a direct relationship between the ESG profile of a company and its financial risk and performance characteristics. According to a recent MSCI study, "research has been so plentiful that several meta-studies have summarised the results of over 1,000 research reports and found that the correlation between ESG characteristics and financial performance was inconclusive: the existing literature found positive, negative and non-existent correlations between ESG and financial performance, although the majority of researchers found a positive correlation."

However, the research also explains that "the reasons for these inconclusive results likely stem from the different underlying ESG data used and the varying methodologies applied, especially in how far they control for common factor exposures." Indeed, capturing a company's ESG profile remains a complex undertaking, much harder than, for instance, measuring the evolution of a company's debt/EBITDA[1] or EBITDA/revenue ratios across a cycle.

ESG encompasses three pillars, each captured through a set of qualitative rather than quantitative factors and sub-factors.

Whilst environmental practices on fossil energy are now commonly measured in terms of companies' carbon intensity (or carbon footprint, typically normed by company turnover), the other two pillars, and particularly social considerations, remain largely dependent on subjective interpretations. Following a series of roundtables held with credit investors and credit rating agencies, in June 2018 the PRI summarised the issue as follows: "Due to the multi-dimensional nature of ESG factors, difficulties in modelling non-financial factors and capturing data interdependencies were cited among the biggest obstacles to ESG consideration in credit risk analysis."

Given the importance of finding common measures, to allow for comparisons between organisations and, crucially, to record and encourage progress, a global, synchronised effort is under way – involving supranational bodies, regulators and the investment community – to identify and quantify relevant ESG indicators. Though the outputs come in the form of non-binding standards, they all strive to overcome this lack of a common rulebook.

Initiatives to identify, qualify and quantify ESG factors

- The Sustainability Accounting Standards Board (SASB) aims to define comparable and objective ESG accounting norms.
- The industry-led Task Force on Climate-related Financial Disclosure (TCFD), headed by Michael Bloomberg and Mark Carney, was formed at the initiative of the G20 and the Financial Stability Board (FSB) to develop a set of recommendations aimed at all financial actors, from companies and investors to asset owners and managers. Its goal is to provide consistent and transparent information to global markets.
- The Global Reporting Initiative (GRI) compiled a comprehensive overview of sector differences in terms of ESG issues.
- The International Integrated Reporting Council (IIRC) is a global coalition of regulators, investors, companies, standard-setters, the accounting profession and NGOs, aiming to provide an improved system for reporting, facilitating and communicating mega-trends, as well as filling current information gaps.

[1] *EBITDA: Earnings Before Interests, Taxes and Amortisation*

Time horizons

Another factor in the difficulty of efficiently tracking the impacts of ESG issues on company performance is the time horizon. Some portfolio managers have a six to 12-month investment horizon, whilst corporate credit research analysts are often asked to make forecasts over a 12 to 24-month period – or even longer where buy-and-hold portfolios are concerned – making basic assumptions on cross-cycle margins or long-term growth rates for longer-term prospects. The issue is that impacts from ESG practices can either be completely unpredictable and short-term (frauds due to bad governance practices, reputational event due to an environmental scandal ...), or very long term, with a typical operational impact going beyond three or five years.

The challenge is not only to normalise the analysis and measure of ESG risks and opportunities at company level, but also to incorporate both random and long-term scenario analyses based on corporate ESG characteristics.

Broadly speaking, we tend to think that potential risks arising from bad ESG practices are short- to medium-term, while opportunities created by ESG trends and good practices are longer-term. One thing is certain: the longer your investment horizon, the more relevant ESG integration will be.

PRI ESG in credit ratings initiative, June 2018[2]:

- On the timing of ESG factors' impact on credit risk: participants considered that some factors emerge gradually (for example, as a result of poor strategy choices or business planning). Meanwhile, others unexpectedly become evident at a specific time, with potentially significant market repercussions. Some may never manifest, if, through engagement, bond investors point out shortfalls and influence an issuer's future course of action.

Time horizon of ESG analysis by rating agencies

Overall, credit ratings can only partially account for long-term sustainability risks, mainly because of the ratings' focus on immediate materiality for credit risk and their relatively short time horizon. Other methodologies have been developed to compensate for this limitation, but fall outside the credit-rating space. Some investors have called for credit-rating agencies to extend their ESG output, including:

- longer time horizons for ratings;
- separate E, S and G factors;
- more extensive ESG disclosures;
- an ESG rating alongside the traditional credit rating.

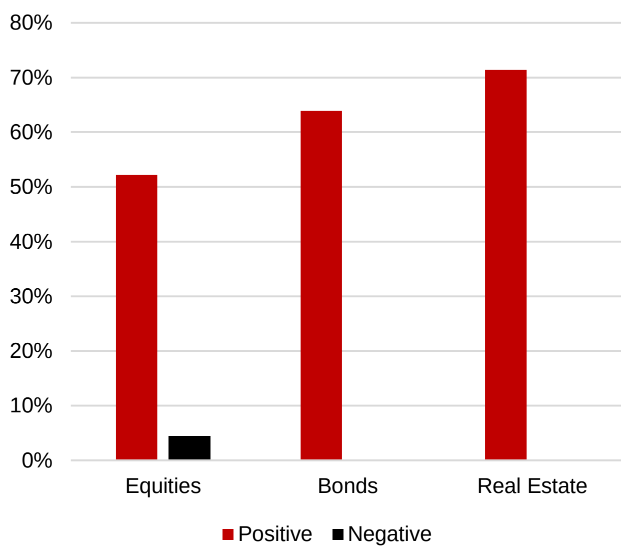
Yet signals are emerging

Despite these limitations, we find that some data allow us to be more hopeful as to the possibility of measuring the material impacts of ESG, and that it is worth using these criteria to assess long-term risks and opportunities. In contrast to the MSCI study discussed above, as more and more finely-tracked results become available, a growing body of research is now able to demonstrate that ESG factors are material to assess credit risk in fixed income. We find that one widely-referenced paper on ESG and fixed income is of particular relevance[3].

This study, which is by far the most exhaustive overview of academic research on the topic, underlines the limited number of available research papers on non-equity asset classes – including bonds – while concluding that the impact of ESG on corporate bonds has a "higher share of positive findings", with two-thirds of studies showing positive impacts.

The report also concludes with an interesting general statement: "The results show that the business case for ESG investing is empirically very well founded. Roughly 90% of studies find a non-negative ESG–CFP[4] relation. More importantly, the large majority of studies report positive findings. We highlight that the positive ESG impact on corporate financial performance appears stable over time."

ESG and financial performance



Source: Gunnar Friede, Timo Busch and Alexander Bassen, 2015

2 PRI ESG in credit ratings initiative, June 2018.
3 "ESG and financial performance: aggregated evidence from more than 2000 empirical studies" by Gunnar Friede, Timo Busch and Alexander Bassen – Deutsche Asset & Wealth Management Investment, School of Business, Economics and Social Science, University of Hamburg, 2015.
4 CFP: Corporate Financial Performance.

The wheels are in motion: quantitative observations on the financial materiality of ESG tend to converge over time

The good news is that a growing number of companies – particularly large listed companies in developed markets – are now willing to disclose their ESG practices, improving analysts' ability to measure and compare their ESG profiles. For instance, Bloomberg's "FA ESG" function currently delivers up to 900 different quantitative metrics on roughly 9,000 companies, on the basis of the information disclosed by companies themselves. MSCI, the ESG research leader, delivers scores on more than 10,000 companies worldwide on ESG characteristics, and publishes ESG indices for both corporates and countries.

MSCI's ESG ratings coverage for Euro credit market

Euro Investment Grade	
IBOXX Euro Corporate	
ESG Score relevance (% AUM)	ESG Score relevance (% Holdings)
97%	96%

Euro High Yield	
BofAML Euro High Yield BB-B Constrainst	
ESG Score relevance (% AUM)	ESG Score relevance (% Holdings)
84%	79%

Source: HSBC Global Asset Management, MSCI, as of end of June 2018

ESG disclosures are more inconsistent for emerging-market domiciled companies, unlisted companies and SMEs. That said, as they strive to become truly global players – and look to refinance themselves on the USD or Euro markets – a growing number of big emerging-market names are making great strides to catch up with the ESG best practices of their developed-market peers.

Increased disclosures are making it easier to analyse the impact of ESG on investing. Of course, existing quantitative observations still have clear limitations. There is a lack of uncontroversial quantitative evidence from academic and industry research, and the periods under review are often too short to be statistically relevant. Yet despite these shortcomings, accompanying the improved disclosure of relevant information, an increasing number of signals demonstrate that integrating good ESG practices has tangible effects on corporates' financial metrics and on investment outcomes. We have selected a few examples below, based on both our own and external observations.

External quantitative research findings

Corporate bonds

The MSCI research team recently ran an analysis based on their in-house MSCI ESG screen[5] and observed that integrating ESG factors has historically reduced portfolio risk and produced higher risk-adjusted returns over the medium to long term.[6] Although this research relates to equity, the nature of corporate risks tends to apply equally to the high-beta bonds of a company as to its equity. In particular, the notions of idiosyncratic risk – including reputational risk – and systematic risk are comparable. To quote the paper's conclusions, both types of risks are lower within higher ESG-rated companies:

- Lower idiosyncratic risk (which includes reputational risk): "Over the past 10 years, higher ESG-rated companies showed a lower frequency of idiosyncratic risk incidents, suggesting that high ESG-rated companies were better at mitigating serious business risks. We have also tested the robustness of this result by using different drawdown thresholds (25%, 50% and 95%) and drawdown periods (three years and five years). In each parameter setup, companies with high ESG ratings had a significantly lower incident frequency than companies with poor ESG ratings."
- Lower systematic risk: "statistics illustrate that companies with high ESG ratings have shown less volatile earnings and less systematic volatility, in line with the conjecture that companies with high ESG ratings show lower systematic risk exposure. As argued in papers by Eccles (2011), El Ghoul et al. (2011) and Gregory et al. (2014), the possible economic rationale for this observation is that a strong ESG profile leads to less vulnerability to systematic market shocks and that translates into a lower beta, therefore a lower cost of Equity and consequently a higher valuation (stock price)."

These conclusions confirm those of a thorough academic analysis conducted on US credit bonds in 2014.[7] Based on an extensive data set comprising more than 3,000 bonds issued by 742 firms across 17 industries, aggregate results of this earlier research clearly demonstrated that, overall, good governance was rewarded and social/environmental transgressions penalised, through lower and higher credit yield spreads respectively.

[5] *Foundation of ESG Investing, Part 1: How ESG Affects Equity Valuation, Risk and Performance - Guido Giese, Linda-Eling Lee, Dimitris Melas, Zoltan Nagy, Laura Nishikawa, MSCI, November 2017 (data from January 2007 to May 2017).*
[6] *For more information, also see Nagy et al, 2016; Dunn et al, 2017; Chaudhry, 2016; Hitchens et al, 2015.*
[7] *The effects of corporate social performance on the cost of corporate debt and credit ratings. Financial Review, 49 (1), I. Oikonomou, C. Brooks and S. Pavelin, 2014.*

Interestingly, as pointed out by the authors, bond markets are more in the realm of institutional investors than equity markets, which probably plays a role in the importance of ESG practices for bond yields. Institutional investors tend to be better informed than retail investors, and better resourced to analyse ESG information. As we discuss in another paper, institutional investors are also paying increasing attention to ESG.

Complementing these findings, in 2015 another piece of academic research compiled the results of more than 200 academic research papers, and came to several interesting conclusions.[8] First, they observed that 88% of the sources reviewed had found that companies with robust sustainability practices demonstrated better operational performance, which ultimately translated into cash flows.

Second, they recorded that superior sustainability standards improved corporations' access to capital: firms with good sustainability standards enjoy a significantly lower cost of capital.

Cost of debt (credit spreads):

- Good corporate governance structures and disclosure policies led to lower borrowing costs
- Good environmental management practices, such as the installation of pollution abatement measures and the avoidance of toxic releases, lowered the cost of debt

Cost of equity:

- The existence of anti-takeover measures increased a firm's cost of equity and vice versa
- Good environmental management practices and disclosure lowered a firm's cost of equity

Sovereign bonds

For the relationship between ESG and sovereign bond performance, we can refer to two studies.

The first was recently run by MSCI on their respective ESG country ratings correlation with country CDS[9], and finds that "countries with higher ESG Government Ratings from MSCI ESG research on average saw their CDS spreads narrow by more, or widen by less, than lower-rated counterparts three years later (for the rating period between 2011 and 2014)."

The period under observation by MSCI in this sample (2011-2014) was characterised by the euro sovereign crisis, and it should be noted that countries with the lowest governance practices also had the largest debt levels – namely Greece, Italy, Ireland, Portugal and, to a lesser extent, Spain. Yet we replicated this study over a different time period and found similar results, with ESG factors more material in emerging markets, and governance the strongest indicator of spread evolution.

The second is a comprehensive analysis of OECD sovereigns across a variety of quantitative observations published by the World Bank.[10] This report also shows that countries with good ESG performance tend to have a lower risk of default and therefore lower bond spreads. In this study, governance once again comes out as the most influential factor, followed by social practices, whilst the environmental dimension appears to have no financial impact. Interestingly, the observed economic impact is stronger in the long run, suggesting that ESG performance is a long-lasting phenomenon…

These two studies seem to demonstrate that investors could better mitigate tail risk by integrating ESG factors into their sovereign issuer credit analyses.

[8] *From Stockholders to Stakeholders – how sustainability can drive financial outperformance, University of Oxford/Smith School of Enterprise and the Environment/Arabesque A.M., 2015.*
[9] *Did ESG ratings help to explain changes in sovereign CDS spreads? MSCI, October 2017.*
[10] *Incorporating ESG factors into investment, Georg Inderst, Fiona Stewart, World Bank, April 2018.*

ESG effects in practice

No obvious results at first sight

The Barclays MSCI Euro Corporate Sustainability Index and the Barclays MSCI Euro Corporate are both built from the same universe of IG issuers, but the Sustainability index is designed to positively screen "best in class" issuers that are more effective at managing the ESG risks most relevant to their industry peer group[11]. Security eligibility follows the same underlying rules for both indices, with additional ESG negative screening for the Sustainability index, using MSCI Impact Monitor Scores, and both are market-value-weighted benchmarks.

Interestingly, both indices have delivered very similar outcomes over time, in terms of both historical returns and volatility. Because the differences are not obvious at first sight, we delved deeper into the available historical data.

Barclays MSCI Euro Corporate and Barclays MSCI Euro Corporate Sustainability Indices

Barclays MSCI Euro Investment Grade	
Volatility	3.79%
Annualised performance	4.06%

Barclays MSCI Euro Corporate Sustainability	
Volatility	3.80%
Annualised performance	4.06%

Source: HSBC Global Asset Management, Barclays MSCI, from December 2006 to end of July 2018
Past performance is not a guarantee of future performance. The index was launched in June 2013 with history available back to January 2007

We looked at the outcome of global credit and sovereign strategies built on the basis of a simple and systematic use of MSCI's ESG company and country scorings. The goal of our analysis was to assess the predictive power of ESG scores. It is not the ESG approach which we implement into our fixed income strategies, but simply an observation of historical data, to estimate what the outcome would have been for strategies exclusively targeting companies with higher versus lower MSCI ESG ratings.

In addition to our conclusions developed below, we observed that companies and countries with the lowest ESG ratings exhibit, on average, the highest risk levels or volatility. This observation perfectly matches the conclusions of a number of research papers, including those we discussed earlier.

Corporate bonds

For corporate bonds, we studied the components of the ICE BofAML Global Corporate Index, looking at their MSCI industry-adjusted ESG scores and risk/return profiles between 2012 and 2017. We tested both the overall ESG scores and each of the 3 ESG pillars independently from each other. We ran the back-test on two long/short strategies:

- Strategy 1: buying the first quartile and selling the last quartile
- Strategy 2: buying the above-median group and selling the below-median group

To measure the risk-adjusted return (Sharpe ratio), we only considered the return from corporate spread variations (appreciation or depreciation) over the period under observation (spread return / volatility).

Both strategies delivered the same outcomes:

- On average, taking ESG scores into account adds value in most circumstances and never destroys value
- The lower the credit rating, the more relevant ESG scores become, as the disparity of ESG practices increases between lower-quality companies: ESG analysis is more effective for BBB bonds than for AAA or AA credit
- Governance is the factor with the strongest predictive power on risk-adjusted returns
- Environmental scoring has the second largest impact, particularly looking from 2012 onwards, when MSCI extended its ESG rating coverage. In particular, good scores on carbon emissions, waste management and water stress deliver the best outcomes
- Social scoring based on MSCI's ESG methodology is less significant

[11] *The MSCI Global Sustainability Indexes are free float-adjusted market capitalisation weighted indexes designed to provide exposure to companies that have high Environmental, Social and Governance (ESG) performance. The MSCI Global Sustainability Indexes aim to target sector weights that reflect the relative sector weights of the underlying indexes to limit the systematic risk introduced by the ESG selection process. Overall the MSCI Global Sustainability Indexes target coverage of 50% of the underlying MSCI parent index ("Parent Index").*

Corporate bonds

Spread Return	High vs. Low				Q1 vs.Q4				Average number of bonds			
	ESG	E	S	G	ESG	E	S	G	ESG	E	S	G
Automotive	-0.12	0.27	0.73	-0.20	0.19	0.12	0.46	0.19	126	126	126	126
Basic Industry	0.38	0.11	0.46	0.05	0.53	0.16	0.39	0.02	348	348	348	344
Capital Goods	0.29	0.63	-0.36	-0.03	0.34	0.79	-0.56	0.16	138	138	138	138
ConsumerCyclical	0.32	0.30	0.28	-0.44	0.32	0.03	0.12	-0.27	199	199	199	199
ConsumerNon-Cyclical	-0.33	-0.16	-0.34	0.15	-0.28	-0.12	-0.30	0.09	270	270	270	270
Energy	-0.13	0.09	0.66	1.01	-0.05	0.18	0.80	0.96	542	542	542	538
Financial	-0.21	0.14	-0.34	0.35	0.85	0.06	-0.40	0.30	474	474	474	474
Healthcare	-0.04	0.60	0.56	0.30	0.18	0.36	0.13	0.44	212	212	212	212
Media	0.30	0.16	0.10	0.45	0.36	0.21	0.22	0.58	198	198	198	198
Real Estate	0.97	1.19	0.36	0.00	0.92	1.05	0.77	0.27	307	307	307	307
Services	0.64	0.68	0.49	0.02	0.68	0.57	0.48	0.04	245	245	245	245
Technology & Electronics	0.35	-0.54	-0.72	-0.56	0.52	-0.57	-0.63	0.41	142	142	142	142
Telecommunications	0.16	-0.36	0.22	0.43	-0.14	-0.63	0.05	0.42	276	276	276	276
Utility	0.30	0.48	0.42	0.08	0.34	0.40	0.42	0.25	411	411	411	411

Government bonds – Developed markets (US, UK, JP, EUR, AU)

	Information Ratio			
	24 month	12 month	8 month	CDS Spot
Government ESG Score	0.06	0.12	0.39	0.29
Risk Management	-0.01	0.14	0.39	0.35
Risk Exposure	0.06	0.02	0.09	-0.03
Governance Risk	-0.05	0.09	0.37	0.36
Social Risk	0.07	0.14	0.44	0.40
Environmental Risk	0.10	0.03	0.03	-0.08
Governance Risk Management	0.00	0.10	0.37	0.34
Social Risk Management	0.22	0.20	0.37	0.47
Environmental Risk Management	-0.23	0.10	0.15	0.12
Governance Risk Exposure	-0.11	0.04	0.22	0.14
Social Risk Exposure	-0.18	-0.06	0.17	-0.02
Environmental Risk Exposure	0.13	0.01	0.00	-0.09

Government bonds – Developed markets (PT, IR, IT, SP)

	Information Ratio			
	24 month	12 month	8 month	CDS Spot
Government ESG Score	0.15	0.28	0.53	0.68
Risk Management	0.11	0.26	0.52	0.63
Risk Exposure	0.15	0.27	0.51	0.69
Governance Risk	0.09	0.24	0.53	0.69
Social Risk	0.12	0.19	0.43	0.43
Environmental Risk	0.16	0.30	0.50	0.67
Governance Risk Management	-0.07	0.17	0.51	0.51
Social Risk Management	0.37	0.26	0.55	0.64
Environmental Risk Management	0.23	0.32	0.35	0.57
Governance Risk Exposure	0.35	0.32	0.46	0.72
Social Risk Exposure	0.03	0.14	0.35	0.32
Environmental Risk Exposure	0.10	0.26	0.53	0.67

Government bonds – Emerging markets

	Information Ratio			
	24 month	12 month	8 month	CDS Spot
Government ESG Score	0.07	0.43	0.85	0.21
Risk Management	0.53	0.85	1.13	0.59
Risk Exposure	-0.42	-0.21	0.14	-0.28
Governance Risk	0.42	0.62	0.86	0.27
Social Risk	0.36	0.61	0.92	0.48
Environmental Risk	-0.61	-0.44	-0.39	-0.38
Governance Risk Management	0.60	0.87	1.06	0.50
Social Risk Management	0.39	0.62	0.87	0.51
Environmental Risk Management	-0.24	-0.10	0.09	-0.04
Governance Risk Exposure	0.01	-0.03	0.30	-0.08
Social Risk Exposure	0.29	0.54	0.92	0.40
Environmental Risk Exposure	-0.64	-0.51	-0.52	-0.46

Source: HSBC Global Asset Management, Bloomberg, as at end of July 2018.
Back-tested performance is not actual performance, but is hypothetical. There are often significant differences between back-tested performance results and actual results subsequently achieved by an investment strategy. Such results are not indicative of future results or performance, which may also differ materially.
Performance data is shown for illustrative purposes only, refers to the past and should not be relied on as indication for future returns.

Sovereign bonds

To analyse the effect of ESG on government bonds, we used countries' MSCI ESG scores, and the risk-return profile of their 5-year credit default swaps, running the tests over the period between January 2012 (when MSCI began publishing ESG country scores) and December 2017. As in our corporate back-test, we measured a proxy of the Sharpe ratio obtained by long/short strategies that bought the above-average and sold the below-average ESG-scored countries.

We measured the risk-adjusted return (Sharpe ratio) taking into account both the return from the carry and spread variations (appreciation or depreciation) over the period. We did this for different asset classes – Developed Markets (DM), Emerging markets (EM) and Frontier Markets (FM), based on MSCI classification – and looked at different types of ESG scores: aggregate level, exposure level (current ESG situation), risk management level (ESG policies and initiatives for the future) and for each pillar (environmental, social and governance) independently.

Our findings over the testing period are:

- On average, taking ESG scores into account adds value in most circumstances and never destroys value
- The predictive power of ESG increases in parallel with the level of risk dispersion across countries, and with each country's own risk level (volatility):
  - ESG is particularly relevant for emerging and frontier markets
  - ESG has some predictive power on average for developed countries once grouped per currency, and for European peripheral countries
- The predictive power of two ESG factors – Risk Management and Governance Risk Management – is particularly strong for Emerging and Frontier Markets

Conclusion: towards a full integration of ESG in credit ratings?

Limitations remain to integrate ESG fully into standard credit rating practices, in particular around common measurements of ESG practices, the need for more widespread disclosures, and a mismatch between the time horizons of investors and ESG-related events.

Yet even with these data challenges, all types of studies show that a causal link can already be demonstrated between good ESG practices on the one hand and stronger returns and valuations on the other. In our opinion, this would help make ESG more than just a risk management tool, but also a means to help uncover investment opportunities.

The explicit integration into agencies' standard credit ratings remain uncertain. Meanwhile, states, supranational bodies and the industry continue pushing for common standards and enhanced disclosure, already yielding meaningful results. Asset managers can also contribute by embedding ESG into their credit research assessments, with the aim of encouraging issuers to further improve their practices and delivering better outcomes for investors.

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Pascale Huard is a Senior Fixed Income Product specialist and has been working in the industry since 1989. Before joining the Euro Fixed Income team in August 2014 as a Senior Product Specialist, she worked in the Multimanager team of HSBC for 14 years as a Portfolio Manager-Analyst. Prior to joining HSBC in 2000, Pascale worked as a Senior Manager at Ernst & Young. She started as a Bond and Money Market portfolios successively at Eurofin and Quilvest Banks. She graduated with a degree in Management from the Université Paris Dauphine (France) and is a CFA charterholder.

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This paper was written in collaboration with our Investment, Responsible Investment, Credit Research and Fixed Income Research teams.

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