

Schroders

Sustainability and Sovereign Fixed Income

June 2017

Jessica Ground, Global Head of Stewardship



For professional investors and advisors only

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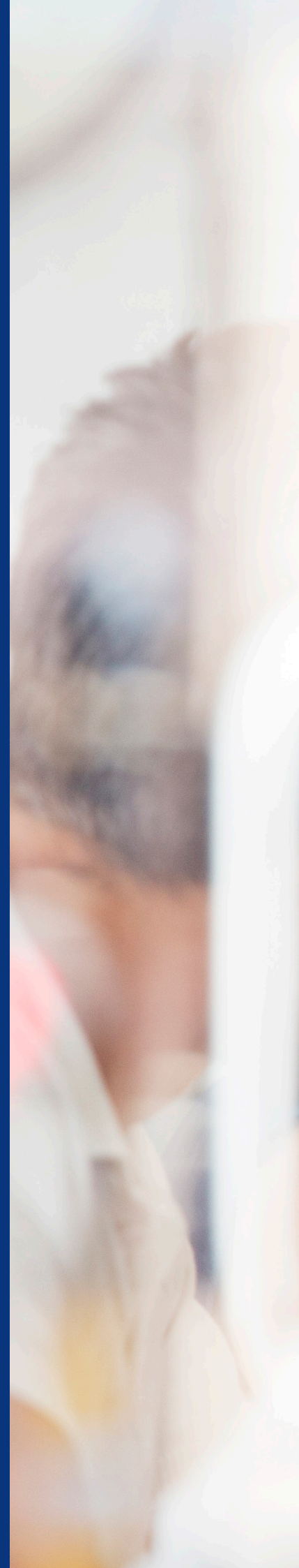
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Introduction

This paper draws on the expertise of practitioners and the limited body of academic evidence to establish a broad framework through which to examine how ESG integration can generate alpha for sovereign fixed income.

In December 2016 the City of Portland, finding itself subject to criticism about individual holdings, decided to divest totally from equities and bonds, in favour of 'uncontroversial' assets such as sovereign bonds. This move may be less socially progressive than it first appears. Environmental, social and governance (ESG) integration in the equity and bond markets (assessing companies on the sustainability of strategy and practices and incorporating the conclusions into portfolios), is becoming more widespread. This is complemented by engagement: holding companies to account on their ESG performance and pushing for improvement. By contrast there has been little discussion on ESG integration or engagement for sovereign bonds, a pillar of many large asset owners' portfolios.

In future, the importance of ESG risks to nations is likely to increase as social and environmental challenges – such as social unrest or climate change – intensify. As global power diffuses and international governance becomes less defined and more changeable, understanding countries' exposures and responses will become more critical to making lending decisions.



How investors should view the risks

Investors should focus on 'medium to long tail' risks

ESG analysis is frequently used by corporate investors as a risk mitigation tool. However, the relationship between ESG risk and sovereign bond performance is not linear; rising ESG risks may lead to relative outperformance of sovereign bonds in some cases. For example, in the wake of a cyber attack or a hurricane, investors will flee to the safety of sovereign debt. Borrowing insurance terminology we have classified these as 'short tail' ESG events, and suggest that they should not be the primary areas of focus.

Investors looking to generate ESG alpha should rather focus on 'medium' and 'long tail risks'. These are defined as changes that build over time, impacting GDP growth rates and ultimately debt sustainability.

Governance and social issues should be prioritised

When evaluating longer tail risks, sovereign bond investors should prioritise the analysis of governance and social issues, reversing the traditional ESG terminology. Japan provides an interesting case study in this. Demographics, deflation and sustained low growth have created a challenging backdrop against which debt to GDP ratios have risen to unprecedented levels. Yet Japanese sovereign bonds have consistently performed well.

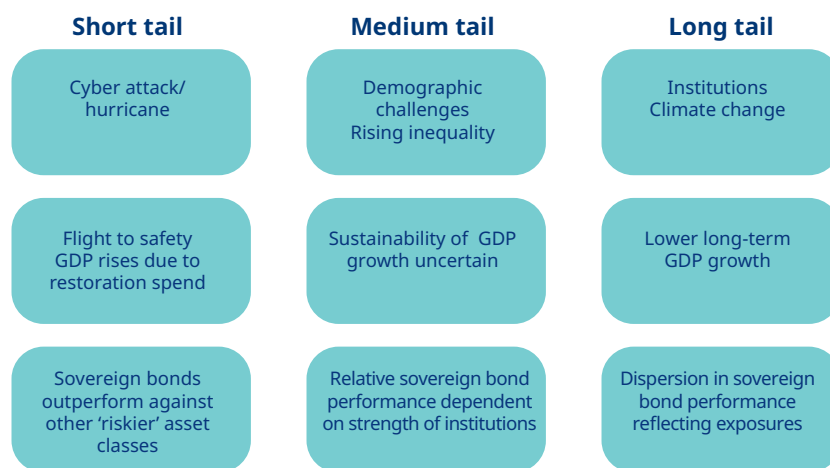
A strong government and institutions, such as the Bank of Japan, together with currency control and social cohesion, have enabled Japan to maintain its credit rating, despite the headwinds described above.

The challenge for investors is not just to gauge the effect of environmental and social trends on economies but also to understand the national governance frameworks in place to identify and mitigate those risks. In this case, the strength of Japan's legal and institutional infrastructure has afforded the economy a safe haven role even as economic growth has dwindled.

The vulnerability of emerging markets

Not all countries will be impacted by long tail ESG factors in the same way. Emerging markets, because of their weaker institutions, are more vulnerable.

Figure 1: Short, medium and long tail risks to sovereign debt



Source: Schroders.

Ironically much of the academic research that shows a link between ESG and sovereign debt performance has focused on developed markets, given better data availability. Ultimately because of the tools available to developed market policymakers, including quantitative easing, fiscal repression and forced buyers, they are relatively immunised against the risks posed by long tail ESG events.

In evaluating emerging markets' ESG exposures, the direction of travel is as important as the absolute exposures. For example, the political response to social pressures is often dramatic, with consequences for all investors in all financial instruments. Assessing how pressures are building through mining data, such as educational attainment and population growth, coupled with regular in-country engagements, ensures that risks are being effectively identified and monitored. The focus should be on identifying the trend of the risks, rather than the tipping point; improvements are as important as deteriorations in generating alpha. For example, in China concerns around pollution are high and could impact social stability. The central government has clearly identified this as a priority, but it remains to be seen how effective local institutions will be in improving air quality to mitigate the risk.

Engagement activity with sovereign issuers by investors is lower than with corporates, but does occur. Bond vigilantes, known for their ability to impose fiscal discipline on countries, have been a consistent feature of sovereign markets. They usually limit their activities to emerging markets, where they are likely to have a larger impact. In emerging markets, more systematic engagement occurs by issuing countries with investors, which provides the opportunity for concerns to be raised.

Realistically, to effect ESG change, concerns need to be raised not just with Debt Management Offices, but directly with governments. For example, at Schroders, we engage with G7 and G20 leaders about climate change risks. Looking into the future we note that engagement could take on a geopolitical flavour. China is now the largest owner of US Treasuries; will governments become the bond vigilantes of the future?

As the global growth backdrop becomes more challenging, understanding the strength of the foundations on which countries are built is increasingly important to debt investors. Embedding ESG analysis into the fundamental investment process (which is known as ESG integration) is an important way of ensuring that investors are well positioned to spot these structural shifts and benefit from them.

The importance of ESG analysis

What is ESG integration?

In an age of rapid social and environmental change, it is vital to assess countries' abilities to adapt and thrive as these forces re-shape industries, governments, growth and inflation prospects. Our sustainability work complements our investment processes by seeking to analyse how sovereigns are impacted by their changing relationships with society and the environment.

Integrating ESG analysis into our investment processes does not mean that we are looking only to invest in 'good' countries nor are we forming judgements on the ethics of individual governments. Rather we seek to ensure that we gain a better understanding of the long-term prospects for a country through analysis of ESG issues. We acknowledge that sovereigns are seen as a safe harbour, and may do relatively well against the equities and bonds of an individual country in the face of a negative ESG event. However, we believe that ESG integration helps with capital preservation and with generating alpha through better country allocation.

The evidence: a limited body of research

Much of the research in the area has focused on the relevance of ESG factors to developed countries' sovereign debt, due to better data quality. One of the first studies done found a link between sovereign bond returns of upgraded versus downgraded countries under the framework of the International Country Risk Guide (ICRG)¹, the longest running data series for political risk analysis. Subsequent work concludes that good ESG practice is associated with lower default risk and spreads, especially in the long run².

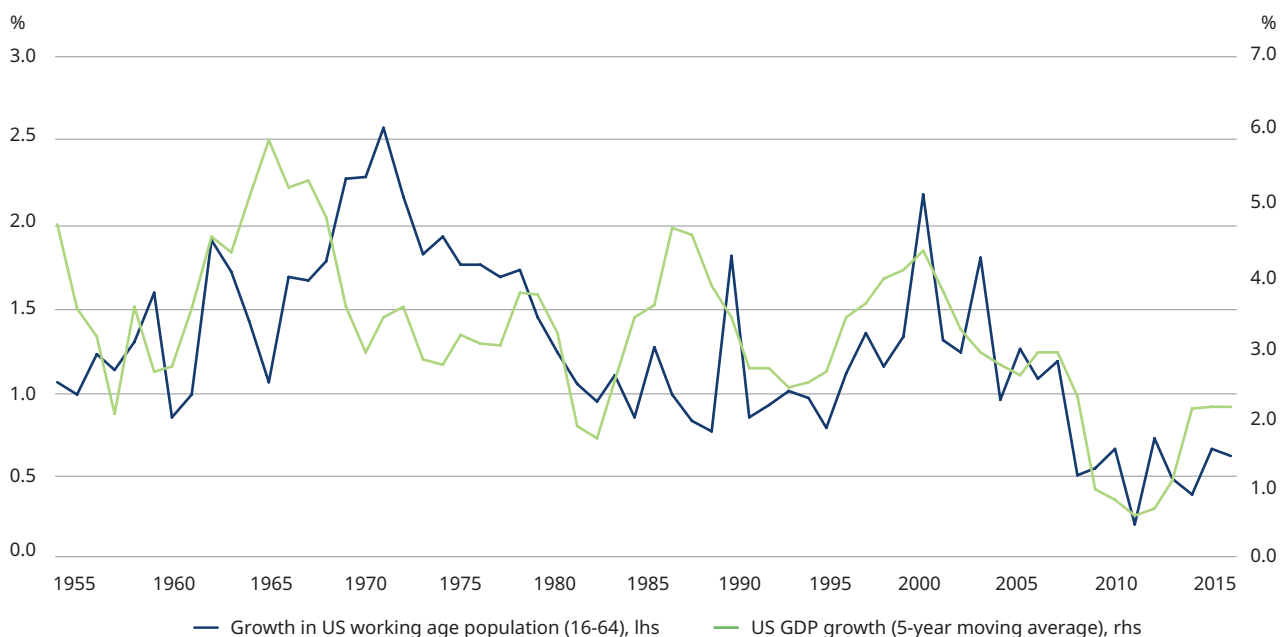
Our view: the importance of social and governance issues

We believe that there is a clear link between social and governance issues, and sovereign debt performance. Other studies³ confirm our hypothesis that governance is the most significant factor. Research shows that investors should look beyond the political system and also understand the institutions more broadly within a country⁴. The conclusion is that institutional quality may play a role in determining whether and how well a government reacts to debt crises.

At a high level, Maplecroft, the geopolitical risk and consulting group, notes that countries displaying poor ESG indicators are often more prone to shocks from social events (i.e. poverty, illiteracy, ethnic and religious differences, and demographic factors), leading to greater sovereign risk. Our own analysis shows how long-term social change, such as a growing population, affects GDP growth which will have an impact on sovereign debt performance. Specifically, there is a clear relationship between population and GDP growth in the US.

Bundala (2015)⁵ shows a link between employment and default; the lower unemployment is the less default risk there is, the same work demonstrated that countries with high equality-adjusted human development index scores also had lower defaults. Connolly (2007)⁶ links sovereign credit ratings and the corruption index measured by Transparency International. Finally Hoepner et al. (2016)⁷ argues that culture is priced by markets, and that 'good' culture ratings reduce government bond yields.

Figure 2: Relationship between US population and GDP growth



Source: Schroders, Datastream.

- 1 Erb, C., Harvey, C. and Viskanta, T., (1996), The influence of political, economic, and financial risk on expected fixed-income returns, Journal of Fixed Income
- 2 Drut, (November 2009) Sovereign Bonds and Socially Responsible Investment, CEB Working paper No 09/014
- 3 Gunther Capelle-Blancard, Patricia Crifo, Marc-Arthur Diaye, Rim Oueghlissi, Bert Scholtens (2016) ESG performance and sovereign bond spreads: an empirical analysis of OECD countries, HAL archives-ouvertes.fr
- 4 Echevarria-Icaza, Victor, (2016), Fiscal Fatigue and Debt Sustainability: Empirical Evidence from the Eurozone 1980-2013, NBER Working Paper Series
- 5 Bundala N.N., (2013), Do Economic Growth, Human Development and Political Stability Favour Sovereign Creditworthiness of a Country? A Cross Country Survey on Developed and Developing Countries, International Journal of Advances in Management and Economics

The importance of ESG analysis continued

The environmental link

On environmental issues there has been a well established link between oil consumption and economic growth, and subsequent research on the relationships between commodity prices and growth. Gervich (2011)⁸ argues that in a resource-constrained world this relationship could change. He speculates that the economic failings that led to the downgrade of the US could perhaps have been foreseen by looking at national petroleum consumption, CO2 emissions per capita, and the return on investment that a nation "receives for its pollution (annual GDP/annual CO2 emissions)". He suggests that these could be useful environmental indicators of a country's future fiscal performance, operating as an 'early warning' system and produces a list of other countries that use resources inefficiently and could therefore suffer a downgrade. However, the link between the causality of resource efficiency and downgrades is not made. Berg et al. (2016)⁹ observes that environmental information enables a better assessment of the expected value and the volatility of sovereign bond spreads; this work includes emerging markets.

The evidence: governance is key

The conclusion is clear that an examination of governance in the broadest sense is clearly beneficial to sovereign bond investment. Social factors, from unemployment to corruption, play a role in determining stability and legitimacy, which impacts returns. Less work has been done on environmental factors, but with the advent of climate change the focus on this aspect could become stronger.

6 Connolly, M., (2007), Measuring the effect of corruption on sovereign bond ratings, *Journal of Economic Policy Reform*

7 Hoepner, A., Oikonomou, I., Scholtens, B., and Schröder, M., (2016), The Effects of Corporate and Country Sustainability Characteristics on the Cost of Debt: An International Investigation, *Journal of Business Finance and Accounting*

8 Gervich (2011) Precarious Economies: Exploring the Use of Environmental Indicators to Predict Economic Instability, S.A.P.IEN.S.

9 Berg, F., Margaretic, P. and Pouget, S., (2016), Sovereign bond spreads and extra-financial information: an empirical analysis of emerging markets, Mimeo Toulouse School of Economics



The tools available to investors and sovereigns

The tools available to investors

While credit and sovereign investment may sit in the fixed income asset class, our experience has shown us that we need a different toolset for sovereigns compared to what we use for fixed income credit. Indeed our credit and equity teams share more ESG analysis and work than our sovereign and credit teams do. Our credit investors are focused on idiosyncratic opportunities. They employ a holistic approach to credit combining fundamental analysis with ESG insights to assess sustainability. They supplement this with a view on transparency, proof of assets, ability and willingness to pay.

The key performance indicators for sovereign sustainability are arguably easier to identify and mine. Analysis benefits from data gathered by international organisations, such as the Organisation for Economic Co-operation and Development (OECD), World Bank and International Monetary Fund (IMF) which covers long time periods and a wide range of indicators. Data tracked includes educational attainment, inequality, gender gaps, pension scheme funding, carbon emissions and infrastructure. Nominally, agencies can incorporate these factors into their work, although in our experience they often remain overlooked. Taking control of that analysis and assessing risks where we consider them

material significantly strengthens our process and has contributed to the strong returns we have delivered in the asset class, as detailed in the section below on emerging market debt.

Despite a wide availability of ESG data sources, investors largely focus on the economic forecasts of the next few quarters, rather than long-term developments. In our experience, the majority of environmental and social change emerges slowly; identifying tipping points that trigger ratings changes can be difficult. For example, our emerging market debt (EMD) team has found that improvements in ESG areas, even from a low base, can provide an interesting signal. As a result, the tracking of relevant data and looking for even incremental change is a core part of their process.

The risk & return relationship is not linear

Using the above tools and ESG data sources can also prove difficult because the relationship between risk and return in sovereign investment is not linear. Recessions, as long as they are short term, are good for sovereign bonds, especially relative to credit and equity investments. Some negative short tail ESG events, such as a hurricane or a cyber attack, may positively impact short-term performance as investors flee for safety.

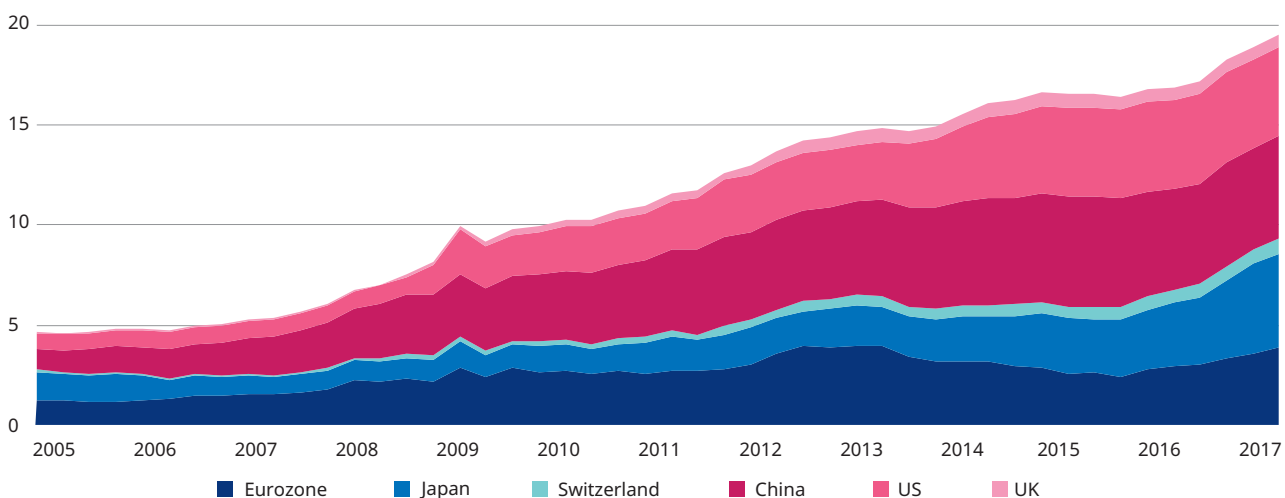
The relationship between sovereign risk and reward shifts when it is clear that a country is facing a different long-term growth outlook as a result of ESG change. For example, prolonged recessions can trigger a social issue such as a 'brain drain' (whereby highly qualified individuals emigrate), putting the country on a different growth trajectory, with consequences for sovereign debt performance. In response to other social factors, such as anger over inequality and austerity, populist governments have in the past promised big fiscal stimulus packages. Sometimes they work and growth picks up, other times they don't. Their effectiveness, or lack thereof, can bring about a debt crisis and eventual default. History is full of examples of populist leaders who have led countries to catastrophic ends, including hyperinflation and even war. These are medium and long tail ESG risks, and should be the primary area of analysis for investors.

The tools available to sovereigns

However, even in the medium term, sovereigns have options at their disposal to deal with debt crises that companies do not, which can limit how exposed to ESG issues they are. They frequently force investors, such as insurance companies, pension funds and banks, to buy their bonds. They can use currency devaluation,

Figure 3: The rising value of central banks' assets

Value of assets in central banks' balance sheets (Trillions of USD)



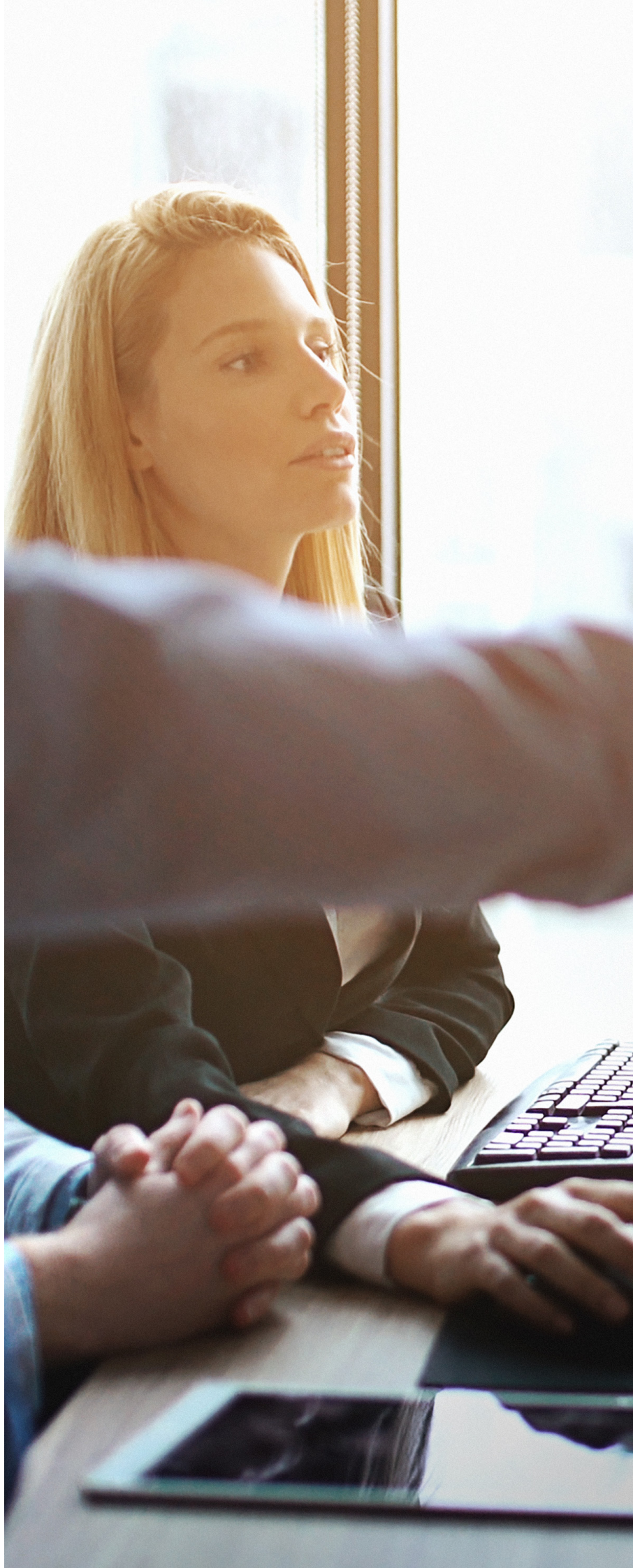
Source: Thomson Datastream, Schroders Economics Group, 26 April 2017.

The tools available to investors and sovereigns continued

inflation and financial repression to reduce the debt burden. Quantitative easing is the latest tool employed to prop up the economy by central banks (with the permission of their governments). This can clearly be seen with increasing central bank bond holdings. However, there have been examples where some of these tools have not been available, and where the debt burden has been too large. The strength of a country's institutions must be analysed before a conclusion on the impact of ESG change is reached. Where these are weak or have been exhausted, countries faced with unsustainable debt burdens will be forced by creditors and potential buyers down a path of fiscal discipline. This in turn can create more risk in the form of social unrest and government instability. The rise of populism in Greece demonstrates how unpalatable such austerity policies can be, and the political consequences that they can have, creating a negative feedback loop.

Social challenges deserve close attention

In our experience, challenges created by social changes can have the most dramatic impact on a sovereign, and deserve close attention. The political response that emerges usually 'overshoots' in a way that can negatively impact credit ratings. On the other side, social cohesion can also help to explain why, for example, Japan is able to sustain the highest debt to GDP ratio in the world while still paying zero or even negative interest rates. The focus of ESG analysis should not only be on identifying future ESG challenges, but also on how well a country's institutions are currently dealing with them. A long-term policy of social fairness minimises the risk of extreme outcomes, but can be difficult to engender.



Developed markets: uncertainty to come?

Fixed income spreads over risk-free assets are a function of the financial strength of the issuer, their ability and willingness to pay. Historically developed market sovereign investors have had fewer concerns in these areas compared to emerging markets. They have long benefited from strong legal and regulatory environments; high standards of health, education and infrastructure; strong labour rights and good governance. While corporate credit investors wonder which companies might cease to exist, and their emerging market sovereign counterparts worry which governments might cease to exist, developed market debt investors don't tend to concern themselves with such questions. However, this could be changing.

Many of the developed markets are facing unprecedented macroeconomic strain, and they make up a substantial proportion of the sovereign debt market. As the political events of 2016 demonstrated, tipping points in society are being reached, and this is very evident in Western Europe.

Demographic headwinds are increasing the pressure. The ability of governments in developed markets to maintain living standards in the face of rising inequality and intergenerational disparity is more important than ever before. Quantitative easing has compounded this by placing additional pressure on the returns earned by corporate and private pension plans and by indirectly helping to increase the value of assets such as housing. Pay-as-you go pension schemes will struggle to cope with retiring baby boomers. The starting point of poor fiscal discipline and high levels of sovereign debt increases the challenge.

Policy responses could aggravate the situation

While the root causes of these challenges have built up over years, the global financial crisis, and the policy response, accelerated the impact of the structural pressure. Populations have been responding at the ballot box; centralist parties' share of the vote has been eroding over a long time. As a result, policy is far

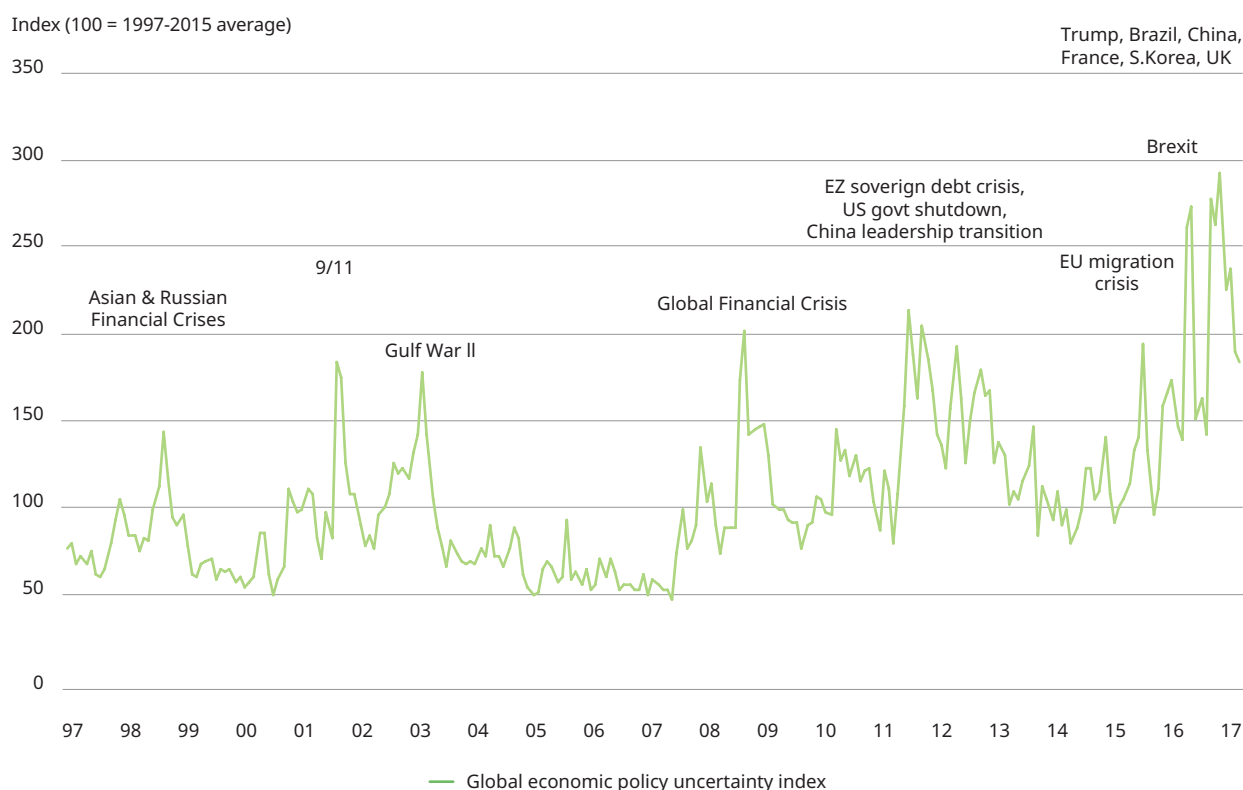
less predictable, with potential impacts on economic, fiscal, security and international policy, which could exacerbate the situation even further. Responses to the demand for more stimulus will not always drive long-term growth.

Policy reflects higher engagement levels from older voters. Already, spending on health is increasing at a faster rate than spending on education in these economies. Working age benefits are being cut. For some countries younger workers are voting with their feet and emigrating, increasing the strain.

The growing popularity of protectionism and populism

These pressures are also expressed in the rise of protectionist attitudes. While gaining in popularity, there is substantial long-term evidence that a country's economic growth is impacted by reduced international co-operation, especially on trade. As attractive as these measures are, they are not long-term solutions.

Figure 4: Rising uncertainty in the developed and emerging worlds



Source: Thomson Datastream, Economic Policy Uncertainty website, Schroders Economics Group. 27 March 2017.

Developed markets: uncertainty to come? continued

The challenge looks set to grow with the expansion of automation and machine learning. It is likely that many jobs will be displaced or that wage premiums will be eroded. The risk is not only for low skill wage earners, for example truck drivers who earn a premium to other low skilled jobs, but also for professional roles in areas like accountancy and law. On current educational attainment levels, developed markets will struggle to maintain employment and quality of life standards for a large part of the electorate.

While some of the countries viewed as being at the greatest risk of default, such as Portugal and Greece, are not major debt issuers, there is a potential contagion effect. Equally worrying are those countries facing a prolonged period of slow economic growth with a high debt burden, such as Italy and France. The Greece 'default' shows that the rules can be gamed if it is in the interests of other nations. But this is a double-edged sword; membership of the euro provides less flexibility to move ahead with financial repression and devaluation. This is clearly coming under pressure given the very real social and economic impact on individual countries. The final impact will depend on geopolitics. Assessing the strength of super-regional institutions will be key going forward, especially in Europe. We are reducing exposure to those regions where we have the greatest concerns ahead of elections.

Political populism, while rising globally, will not impact all developed market sovereigns in the same way. We acknowledge that while levels of indebtedness have risen in these markets and social pressures are rising, rates have stayed low and bond vigilantes have been absent. Thus far the US, supported by the dollar's role as a reserve currency, immunised sovereign bonds from these ESG pressures, despite also experiencing increasing populism and protectionism. However, we continue to monitor ESG data to evaluate how long the current status quo will be maintained and to identify tipping points. It is interesting to see that China has already moved away from pegging solely against the dollar. In the UK it is too early to say what the long-term impact of Brexit will be on sovereign bond yields. However, as the 1979 bailout of the UK by the IMF showed, even developed markets can face challenges.



Our engagement with sovereigns

Given the importance that we place on examining a country's performance on a holistic basis, engaging with sovereigns goes without saying. The majority of this engagement is for fact finding purposes, which then informs our investment decisions. We have raised controversial issues with governments, such as the treatment of foreign labour, where we consider them to be of long-term importance. This is to both assess their handling of a situation and to encourage improvement.

Promoting change

On a limited basis we will engage on an issue with a view to promote change. In May 2015 ahead of the Paris climate change negotiations (COP 21) we co-signed a letter to finance ministers expressing our views on the systematic risk that climate change poses. Our letter called for an ambitious long-term goal to be adopted by the G7 to limit global warming to 2 degrees Celsius above pre-industrial levels. We followed this up in 2017 with a letter to G20 leaders encouraging them to continue with progressing in this area. We are, however, realistic about our ability to change policy.

Corporate collaboration

Collaboration is a key feature of our engagement with companies, helping to enhance our position as minority investors. Historically, rating agencies did engage, but as they have become more transparent in their approach, this activity has declined. For private investors there are no established forums for collective engagement. Periods of crisis (for example before a potential default or debt haircut) can trigger some collaboration.



Incorporating the impact of climate change

We are explicitly building in the long tail risks into our investment processes firm wide. One of our key pieces of work in this regard was a series of articles, authored by the Schroders Economics team, looking at the impact of climate change on the global economy covering:

- The effect on global growth and inflation
- The different climate loss functions (these attempt to estimate the economic cost associated with a given increase in temperature)
- The regional effects of climate change
- The possible policy responses.

The work concluded that the effect of climate change on economic growth will be negative, through property damage, productivity losses, mass migration and rising unrest. Inflationary impacts may be created through higher energy costs from policy change around mitigation efforts. Developing countries are more at risk given their naturally warmer climates and reliance on forestry, tourism and agriculture.

Ironically, the initial economic impact from extreme weather events could be an increase in GDP as losses are not measured and rebuilding activity would flatter the figures. As events increase in frequency capital stock may not be replaced, leading to disruption as it relocated or a greater longer term impact if lost. This would cause a knock-on effect on productivity. Channelling resources away from investment towards rebuilding puts additional pressure on future GDP growth.

There is a range of estimates about the long-term impact on GDP; 1% in the most severe of cases which is significant when considering the compounding effect. The Schroders Economics team produces 30-year return forecasts on an annual basis for a range of asset classes, which this work feeds into. Compounding the results even further out indicates an even larger impact.



Conclusion

The importance of ESG integration

We acknowledge that 'short tail' ESG risks may trigger a flight to safety and positive sovereign bond performance, especially relative to other assets in the country. In the short term the relationship between rising ESG risk and sovereign bond performance is non-linear, but this changes over the long term. The impact is largest for the emerging markets. Information is widely available to assess risks, but not often analysed systematically. It is important not only to hunt out tipping points, but also to evaluate trends. Social issues are a major risk, and understanding these, as well as how countries are navigating them is key for alpha generation in this asset class.

Central to our philosophy as active investors is a belief that ESG analysis is not an objective in itself but a core part of our process, providing a better understanding of risk, reward and the sustainability of investments. For sovereign bonds in both developed and emerging markets, academic evidence shows the importance of taking a holistic approach to the data, ensuring that a wide range of information is considered outside of 'pure' growth and inflation information. That analysis cannot be distilled into a single value to formulaically adjust position sizes or return expectations. Relationships between ESG issues and performance are too complex, interlinked and non-linear to allow a simplistic solution. Rather, what is required is in-depth country knowledge and asset class expertise, embedded directly into investment decisions. Going forward we will look to publish more insights, especially on specific data sets, that are relevant for this asset class.



Schroder Investment Management Limited

31 Gresham Street, London EC2V 7QA, United Kingdom

Tel: +44 (0) 20 7658 6000

 [schroders.com](https://www.schroders.com)

 @schroders

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