GLOBAL MACRO SHIFTS

with Michael Hasenstab, Ph.D.

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ENVIRONMENTAL, SOCIAL AND GOVERNANCE FACTORS IN GLOBAL MACRO INVESTING

FRANKLIN TEMPLETON INVESTMENTS

Contents

Global Macro Shifts

Environmental, Social and Governance Factors in Global Macro Investing

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Global Macro Shifts is a research-based briefing on global economies featuring the analysis and views of Dr. Michael Hasenstab and senior members of Templeton Global Macro. Dr. Hasenstab and his team manage Templeton's global bond strategies, including unconstrained fixed income, currency and global macro. This economic team, trained in some of the leading universities in the world, integrates global macroeconomic analysis with in-depth country research to help identify long-term imbalances that translate to investment opportunities.

**The team would also like to thank Julie Moret, Head of ESG, for contributing her valuable insights on ESG investing.*

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All investments involve risks, including possible loss of principal. Special risks are associated with foreign investing, including currency fluctuations, economic instability and political developments. Investments in emerging markets, of which frontier markets are a subset, involve heightened risks related to the same factors, in addition to those associated with these markets' smaller size, lesser liquidity and lack of established legal, political, business and social frameworks to support securities markets. Because these frameworks are typically even less developed in frontier markets, as well as various factors including the increased potential for extreme price volatility, illiquidity, trade barriers and exchange controls, the risks associated with emerging markets are magnified in frontier markets. Bond prices generally move in the opposite direction of interest rates. Thus, as prices of bonds in an investment portfolio adjust to a rise in interest rates, the value of the portfolio may decline.

Overview

The world of finance professionals has recently begun to attribute much greater and explicit importance to the environmental, social and governance (ESG) factors in investment decisions.

Interest has also increased within sovereign governments, emphasizing the effect that ESG has on macroeconomic performance. This should not be surprising. Economists and historians have for a long time recognized and debated the importance of environmental factors and of social and political institutions for the long-term economic development of countries. Some of the early theories—going back all the way to Machiavelli in the sixteenth century—assigned great importance to the role of the environment, stressing that geography and climate determined the success of agriculture, the prevalence of diseases, and other determinants of economic growth. The role of environmental factors has been explored more recently by Jared Diamond in his 1997 best-seller *Guns, Germs and Steel*, and by Jeffrey Sachs in a 2001 paper (*Tropical Underdevelopment*, National Bureau of Economic Research).

The importance of institutions has been studied and documented even more extensively. To give but two examples: Harvard political scientist Robert Putnam has argued that the very different economic performances of Italian regions can be traced to the respective strength of civic institutions all the way back to the Renaissance (*Making Democracy Work*, 1993). In *Why Nations Fail* (2012), Daron Acemoglu and James Robinson argued that economic and political institutions are by far the single most important driver of economic performance.

In our view, any macroeconomic analysis and investment strategy focused on long-term, fundamentals-driven performance should incorporate ESG factors as a key pillar of its analysis. ESG speaks to an economy's potential as an investment destination and the sustainability of that investment. Not only does industry research support the effectiveness of incorporating ESG analysis,[1] we have also found it to be a critical prong of our research process.

Consider:

1. The quality of governance, and of political and economic institutions, plays a crucial role in macroeconomic performance, particularly in emerging and frontier markets. Robust governance contributes to the quality, stability and predictability of the policy environment and typically goes hand in hand with stronger potential growth, as well as greater resilience in the face of domestic or external challenges. It contributes in an important way to determining the risk of financial and economic crises. A new administration that has the ability to radically shift policy direction can be reason to enter or exit a market. Some governance factors such as corruption and attitude toward foreign investment also present large risks through political scandals and policy changes that complicate investments.

2. Social conditions influence a wide variety of political issues, including stability and the policy mix, while also directly impacting a country's macroeconomic developments through competitiveness and efficiency. Although many social factors affect long-term growth potential, they can also have significant short-term impact. Lack of social stability can lead to armed conflicts or create opportunities for savvy political forces, oftentimes to the detriment of the population. At the same time, factors such as wage pressures and infrastructure development have real effects on both domestic and external activity.

3. Environmental factors also have an important role, particularly in emerging and frontier markets that tend to have looser regulation and more limited ability and resources to react. Natural disasters like droughts, floods, earthquakes and hurricanes can have devastating economic and human consequences. Other than the human costs, they can spark disruptions in energy, food and material availability that cause issues like skyrocketing inflation or supply chain disruptions. Unsustainable practices and pollution can cause social instability, and cleanup costs can cut into an economy's growth potential.

This edition of Global Macro Shifts reviews the importance of ESG factors in macroeconomic analysis through a series of specific case studies. The paper is organized as follows: the Overview explains the increasing interest and importance of ESG in the sovereign asset class; Section 1 lays out the unique methodology of our proprietary TGM-ESG index; Section 2 presents the results of this exercise on a sample of 44 countries; Section 3 uses a variety of case studies, including both past and present investment decisions, to illustrate some of our thoughts on ESG; and we conclude the paper with a brief summary of our views.

1. See United Nations' PRI, "Sovereign Bonds: Spotlight on ESG Risks," 2013.

1. Our ESG Methodology and Proprietary Templeton Global Macro ESG Index (TGM-ESGI)

Combining all these factors and bringing them together with the traditional economic assessment of a country's trajectory and potential constitutes a non-trivial challenge. We have opted to take a rigorous and systematic approach, developing our proprietary Templeton Global Macro ESG index (TGM-ESGI), which allows us to quantify ESG inputs and enables comparison across a broad spectrum of countries.

We believe our approach has three key points of strength: (1) it has a comprehensive perspective, based on a careful selection of a broad spectrum of high quality indicators along with contribution from our internal research; (2) it provides a synthetic measure combining the different dimensions into a single numerical score that facilitates cross-country assessment; and (3) it has a forward-looking dimension based on our analysts' forecast of changes in ESG factors. We believe this makes it more powerful than alternative approaches that are based on only a few, disjointed indexes, and provide merely a snapshot of current conditions.

We employ a scoring system, in which countries are given a score from 0–10, with 0 being the lowest and 10 being the highest, to calculate a final ESG grade. The TGM-ESGI is constructed by overlaying the views of our research team upon a benchmark created from global indexes. To build our index we first canvassed representative and reliable indexes from reputable sources like the World Bank, the World Economic Forum and the United Nations. Our analysts then adjust benchmark ESG scores based on their proprietary country research and assign projected scores in anticipation of how these conditions will evolve in the medium term.[2] This grading system rests to an extent on our subjective judgment, but we firmly believe it allows us to incorporate the insights of our research team and provides a rigorous method to assess underlying opportunities in a way that complements more traditional macroeconomic tools.

Our ESG scoring includes 13 subcategories under the ESG groupings that we see as critical factors in measuring a country's economic sustainability. Some of these categories do not have immediate implications but can have significant effects in shaping an economy in the medium to long term. We must also note the fluid nature of ESG measures. While we have clearly delineated subcategories for the purpose of scoring, these factors cannot be easily compartmentalized. This challenge must be overcome in any methodology that attempts to quantify ESG inputs.

Current and projected scores are given individually for each subcategory and then averaged to attain a score for governance, social and environment. Within each of the three ESG categories, we assign equal weights to the 13 subindexes. We then calculate a final composite ESG score for each country with a weighting of 40% for governance, 40% for social and 20% for environment. The environmental factors receive a lower weighting because their impact on the economy often occurs over significantly longer time horizons than governance and social factors, as well as over longer timeframes than most fundamentally driven investment strategies.

The TGM-ESGI then enters our economic assessment as an additional metric to complement our macroeconomic analysis and asset valuation assessment. We want to clarify that the integration of ESG into our investment processes does not imply we are forming value judgments on individual governments, social structures or environmental policies. ESG simply serves as an additional tool to be used in formulating investment decisions based on financial considerations.

Exhibit 1 provides a visual illustration of our methodology, Table 1 describes the 13 subcategories and the Appendix provides more detailed information on the component indexes.

2. Our medium-term projections are for the next three years.

The Role of ESG in Our Investment Process

Exhibit 1: ESG Factors and Economic Analysis Inform Investment Decisions

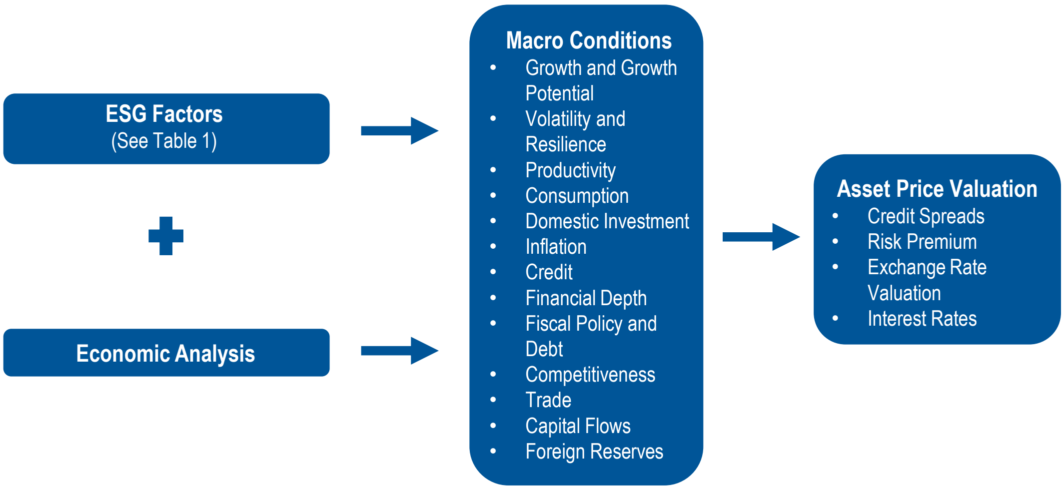


Table 1: Subcategories of Our TGM-ESGI

GOVERNANCE		
	Characteristics	**Effect on Macro Conditions**
Effectiveness	Effectiveness looks at the ability of authorities to carry out tasks and goals. Focuses here include the governing coalition's political capital and consensus-building ability, as well as the level of bureaucracy in decision-making. The category also takes into consideration the distribution of responsibilities between different levels of government and the effectiveness of local authorities.	A government's effectiveness contributes critically to the approval and implementation of policy. Strong ideas and intent can be hamstrung by political inexperience and inability to overcome opposition. An example would be gridlock in the legislature between majority and minority coalitions.
Policy Mix	This category looks at what policies a government stands for, as well as its willingness to enact those that improve the country's medium- to long-term sustainability. States are rewarded for being willing to pass unpopular but necessary reforms as well as orthodox approaches to economic and political challenges.	Policy direction has an important impact on macroeconomics. Just a few examples include whether leadership stands prepared to enact fiscal austerity (such as pension reform or subsidy removal) for the sake of a sustainable debt path and the government's willingness to service debt, which directly impacts asset prices.
Corruption	Measures of corruption and transparency are taken into account to minimize downside risk. Corruption includes the local-level behavior that wears down public trust and ranges up to high-level nepotism or outright theft.	Corruption can result in major political scandals that impact the government's effectiveness and also distract from productive policy. Other effects of corruption can be unreliable government statistics for research purposes and international sanctions or withdrawal of international aid.
Institutional Strength	The quality of a nation's governance depends on more than just the politician in charge or even the party in power. This category measures a country's institutions, including judicial strength, central bank independence, and other checks and balances.	Institutions provide a layer of reassurance regarding the consistency of policy emerging from any government and limit the impact of a few negative influences. For example, a fiscal rule embedded in the constitution has stronger credibility than one periodically subject to legislative votes.
Business Climate	This category evaluates the government's attitude toward business activity, as well as foreign investors. The score helps inform us whether the government in question considers foreign investment as an opportunity to grow the economy or as a threat to defend against.	Business climate impacts investment levels and capital flows. Targeted tax breaks or special industrial zones can encourage domestic capital expenditure, and removing restrictions on foreign ownership of business in key sectors can significantly boost capital inflows as well as improve productivity.

Table 1: Subcategories of Our TGM-ESGI (cont'd.)

SOCIAL	Characteristics	Effect on Macro Conditions
Social Cohesion and Stability	Lack of political cohesion comes in many forms, from risk of uprisings against the ruling regime to ethnic or religious conflicts. Populism stands out as a prominent risk, characterized by tensions between different groups in society and rejection of technocrats.	Active conflicts can clearly lead to instability that negatively impacts economic conditions. But decay of social cohesion can also be harmful when savvy politicians take advantage of it. Recent waves of protectionism and anti-immigration sentiment are results of such dynamics.
Infrastructure	Infrastructure includes the building of reliable land, air and marine transport technology and the strengthening of critical telecommunication systems. Strong infrastructure helps developing business activity and constitutes an important gauge of whether the government takes a long-term view of economic issues.	Investment in infrastructure not only provides a temporary boost to a country's gross domestic product (GDP) through employment and construction, but necessary projects also can expand growth potential for years to come. Lack of adequate infrastructure can also cause supply bottlenecks that lead to inflationary pressures.
Human Capital	Investment in education, health care and social programs is necessary for the long-term development potential of any economy. In this category we focus on policies like a strong safety net that positively affects human capital, as well as issues such as excessive public employment that hinders its development.	Human capital affects the level of skilled labor and thus the productive ability of any economy. Movement up the supply chain into higher profitability first requires technological know-how. Similarly, policies that encourage female labor force participation can structurally increase labor's contribution to growth.
Labor	A balanced labor market can be one of the greatest challenges that an economy faces. We are looking for fair pay that allows citizens to consume and participate in the economy, as well as competitiveness and the ability of corporations to allocate resources effectively.	Labor and wages are connected to complicated issues like competitiveness and productivity. Wage flexibility increases resilience to external shocks and protects export competitiveness, while rigid labor laws push labor into the informal market and reduce tax collection.
Demographics	This category looks at the effects that demographics have on a country's macroeconomic picture. These issues include rapid population growth, aging and immigration, all of which affect the size of the working population.	Demographics can be double-edged; a growing population can both aid in growth potential as well as create challenges for governments to generate enough jobs or risk social instability. Demographics also affect a country's tendency to consume or save, which has effects on growth.

ENVIRONMENT	Characteristics	Effect on Macro Conditions
Unsustainable Practices	The sustainability of a country's treatment of the environment can be a crucial issue. Unsustainable practices range from emissions to water pollution to destruction of biodiversity. Emerging and frontier markets are more likely to engage in this type of behavior due to lax regulation.	The costs of unsustainable practices can cause real disruptions to economic activity, often in the form of agriculture and trade. This behavior can also draw international opposition in the form of sanctions and divestment.
Extreme Weather Risk	Droughts, monsoons, earthquakes and hurricanes can have large, disruptive impacts on an economy. While we cannot predict weather patterns, we can be aware of the risks they pose and how well a country can handle such disasters.	One macroeconomic impact of extreme weather risk falls on the price of goods; disasters such as droughts or hurricanes can severely disrupt availability of necessities like food or energy. The result can be significantly higher inflation or even sovereign default.
Resource Scarcity	As the global population increases and demands higher standards of living, the consumption of limited resources has increased. Resources can include the basic needs of any population, like water and arable land, or economic needs such as fuel and minerals.	Resource insecurity and depletion can threaten to disrupt established industries, particularly for countries dependent on resource-dependent economic activity such as agriculture, fishing and mining.

2. TGM-ESGI: Country Rankings

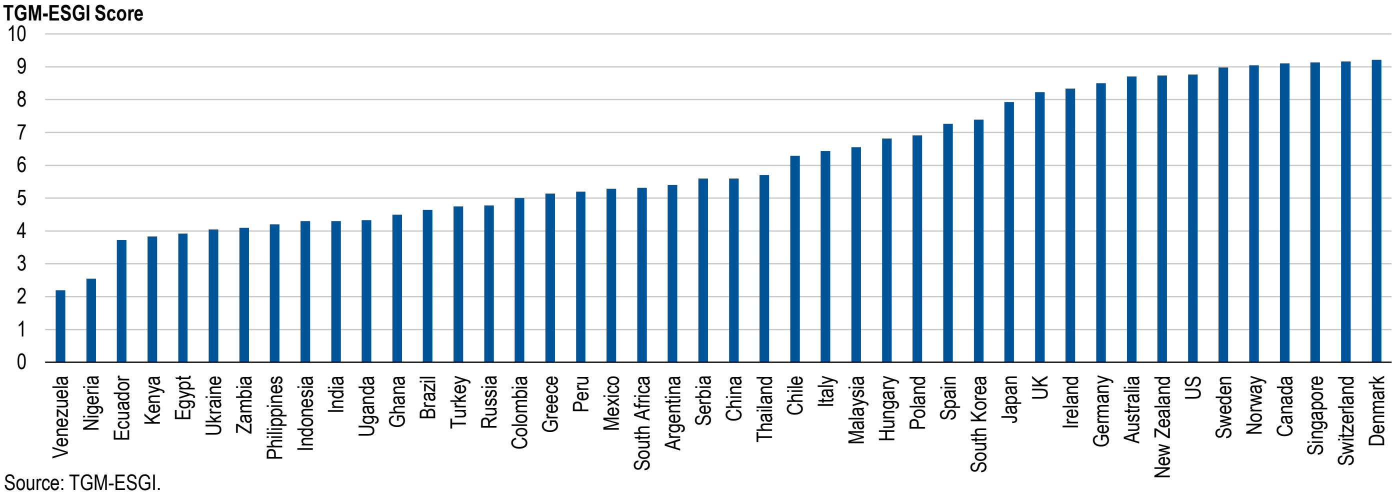
Exhibit 2 shows the results of our scoring method for 44 countries. The grades range from a high of 9.2 for Denmark and Switzerland to a low of 2.2 for Venezuela. No country received a perfect score; the group that performed well on governance and environmental indicators did not always receive a high grade for some social subcategories, namely labor and demographics.

Our results show, as expected, that developed countries[3] have higher ESG scores; developed markets have an average grade of 8.2 compared to 4.9 among emerging markets. Similarly, we see that ESG corresponds strongly with GDP per capita (see Exhibits 3 and 4). The relationship between these two indicators appears to be exponential; the payoff of stronger ESG performance on income rises as scores increase.

We should note that, especially at higher per capita GDP levels, the relationship with ESG scores becomes mutually reinforcing rather than a simple one-way causal relationship. As we mentioned above, strong governance institutions, social cohesion and sustainable environmental policies support economic growth and higher income levels. At the same time, as countries become richer they can invest more in state of the art infrastructure, assign greater priority to environmental sustainability, and develop a well-educated middle class that demands better social and political institutions.

Environmental, Social and Governance Scores by Country (TGM-ESGI)

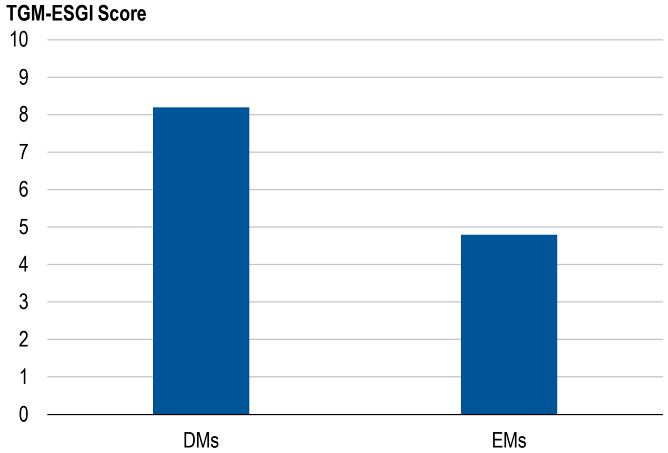
Exhibit 2: TGM-ESGI Scores by Country
As at February 2018



Source: TGM-ESGI.

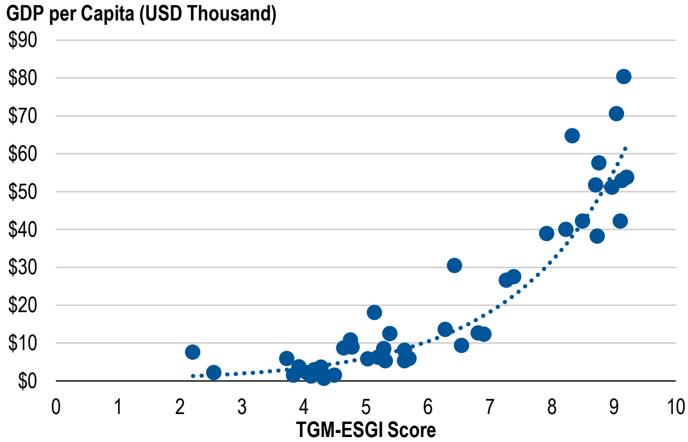
Developed Markets with Wealthy Populations Score Higher

Exhibit 3: TGM-ESGI Scores: Developed Markets vs. Emerging Markets
As at February 2018



Source: TGM-ESGI.

Exhibit 4: TGM-ESGI Scores vs. GDP per Capita
TGM-ESGI Scores as at February 2018
GDP per Capita as at October 2017



Source: TGM-ESGI; IMF World Economic Outlook.

3. As defined by the International Monetary Fund's (IMF's) advanced economies list in 2017.

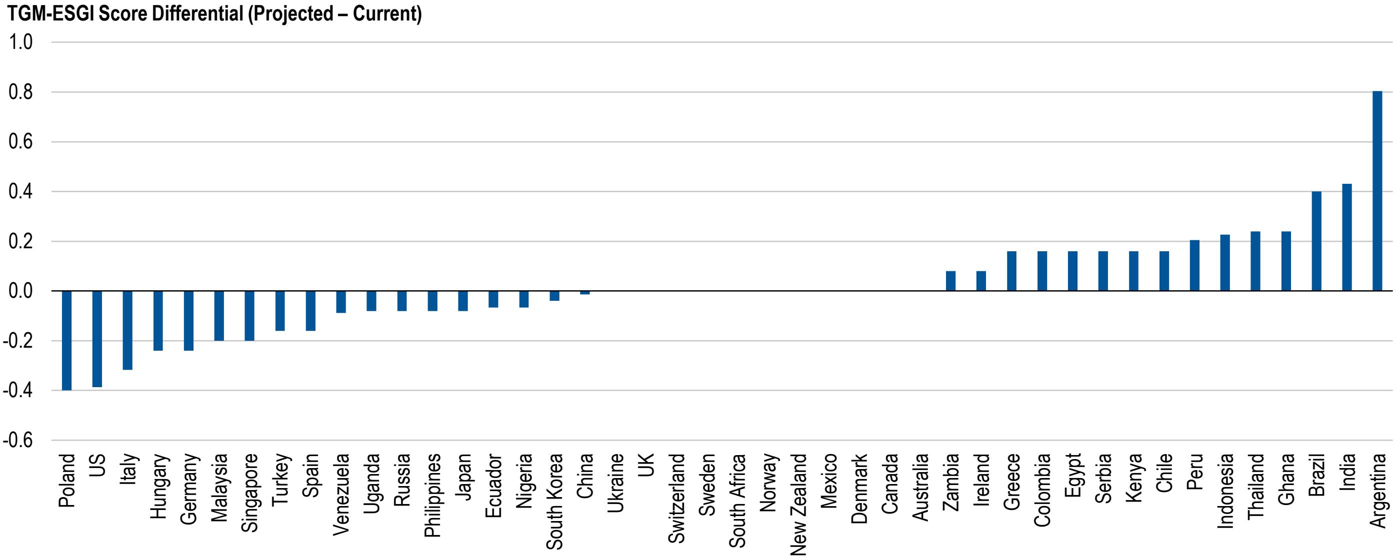
ESG factors are constantly evolving and, as we argued at the outset, a key advantage of our TGM-ESGI lies in its forward-looking component. As Exhibit 5 illustrates, our analysts expect some significant shifts in ESG factors across a range of countries—in some cases improving, in some deteriorating.

The ranks of the countries where we expect ESG factors to improve are dominated by emerging markets. Conversely, we expect a deterioration in the TGM-ESGI for several advanced economies, notably in Europe and Japan. Starting from lower average scores, emerging markets naturally have more room to improve; however, the fact that some advanced economies are expected to backtrack also speaks to the gradual convergence we have been seeing between advanced and emerging economies in terms of economic performance and weight in the global economy.

TGM-ESGI Projected Scores by Country

Exhibit 5: TGM-ESGI Scores: Projected – Current

As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

3. Case Studies

3.1 Political Cohesion: A Tale of Two Eurozone Countries (Ireland and Greece)

The global financial crisis dealt a heavy blow to several eurozone countries. The sudden spike in unemployment and the need to implement austerity measures tested social cohesion and political consensus to an unprecedented degree. The strength of social factors became a crucial determinant of resilience and success. Greece and Ireland are arguably the two clearest, diametrically opposed examples (see Exhibits 6 and 7).

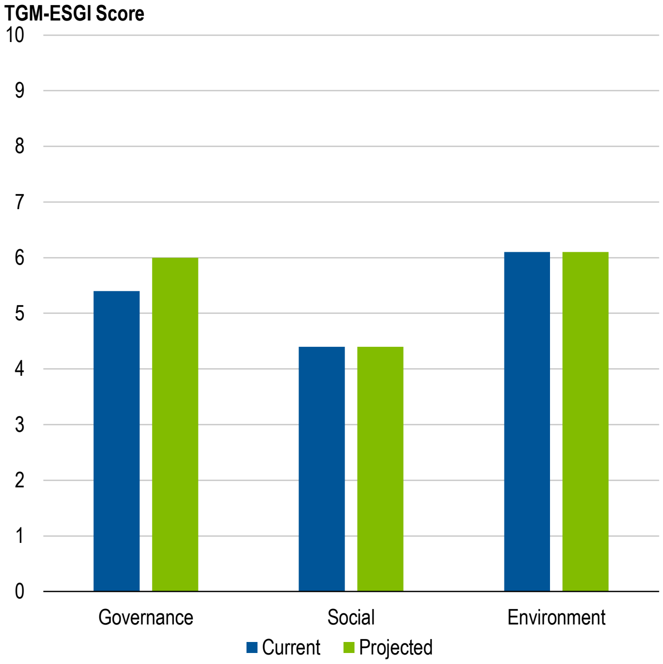
Greece: No Political Consensus

Since its first bailout in 2010, Greece had to adopt a number of tough measures, including fiscal austerity and structural reforms, with progress being assessed by the European Commission (EC), the IMF and the European Central Bank (the so-called Troika) on a quarterly basis. The fiscal adjustment was frontloaded and based more on permanent expenditure cuts than tax increases. Total fiscal adjustment amounted to a staggering 20% of GDP between 2010 and 2014. This was accompanied by broad structural reforms such as pension reform and business environment reforms. In its third evaluation in February 2011, the IMF indicated the program had made progress, but that major reforms were still needed to secure fiscal sustainability and economic recovery. While the overall fiscal adjustment was impressive, some tensions and shortcomings were evident in budget implementation, in particular shortfalls in revenue collection and problems with spending control.

In 2012, the second bailout program review showed that program implementation continued to lag behind targets. The economic adjustment program was widely seen in Greece as an unfair diktat imposed by Europe and the IMF; the measures had little if any support among the population. This popular opposition to reforms resulted in an early threat to hold a referendum on exiting the eurozone, which was subsequently retracted. Later down the line, it resulted in a 2015 change in government from the New Democracy party (ND) to the more radical left-wing Syriza party, which opposed the bailout terms, and led to the suspension of the Troika program. Lack of social and political cohesion proved to be an insurmountable obstacle to effective adoption of the tough changes needed to get the economy back on its feet. Economic performance remained weak, and debt sustainability at risk.

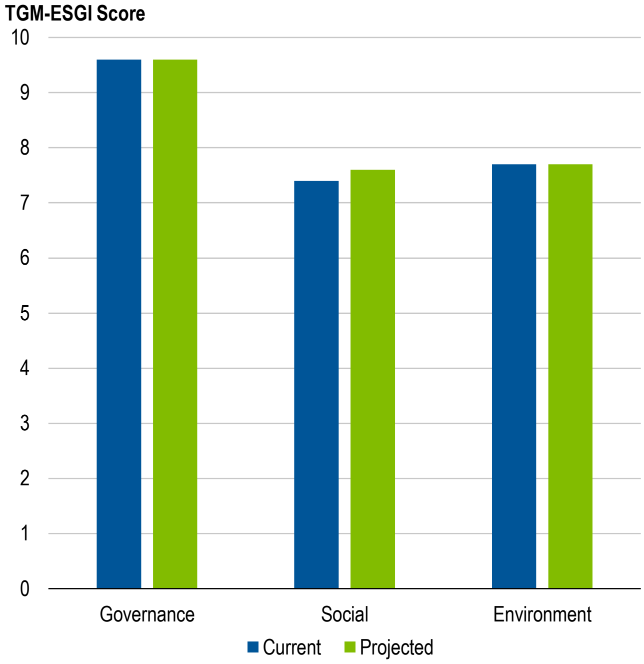
Ireland Performs Significantly Better on ESG than Greece

Exhibit 6: Greece: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

Exhibit 7: Ireland: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

Ireland: Political Consensus

At the height of the same crisis, the Irish government announced the National Recovery Plan (2011–2014), which aimed to lower the deficit below 3% by 2014 and return to sustainable growth. The plan envisioned a total of €15 billion budget adjustment between 2011 and 2014. The adjustment was frontloaded, with €6 billion (or 40% of the total) implemented in 2011. After the February 2011 general election, the new government announced that it would continue to pursue the agreement with the IMF/European Union (EU), and it endorsed the 2011 budget adjustment of €6 billion—though the government extended the time horizon for the total budget consolidation by one year to 2015.[4] Ireland's population understood the need for fiscal adjustment and supported the tough and painful measures, allowing successive governments to keep the plan on track with the IMF and EC conditions. Ireland's economic fundamentals improved more quickly as a result, which also put the country in a stronger bargaining position; it was able to resist repeated calls by its EU partners to increase Ireland's corporate tax rate, a cornerstone of its pro-business stance and international competitiveness. Ireland's economy took off relatively quickly, enjoying one of the strongest recoveries in the EU.

Press reports over the last several years have often highlighted the hardship suffered by Greek citizens, so one might wonder if Greece faltered because it faced harsher conditions than Ireland. That, however, does not seem to be the case: a 2011 study comparing austerity measures across the UK, Spain, Portugal, Greece, Estonia and Ireland showed that the size of the adjustment undertaken by Ireland was substantially greater than that of any of the other countries.[5] In fact, Ireland was one of the few European countries that experienced a decline in GDP per capita, in contrast to Greece where income actually grew between 2007 and 2010 (see Table 2).

Among other factors, there could be two ESG-related reasons why the Irish public was willing to endure the painful austerity measures while the Greek population was not. For one, the Euromod study mentioned above also shows that the distributional impact of the policy changes in Ireland was among the most progressive (with Portugal at the other end of the spectrum), meaning the wealthy suffered disproportionately to the poor. This appears in Ireland's superior Gini index coefficient[6] compared to Greece's—the more equitable distribution of the adjustment might have helped underpin social stability and cohesion within the former.

Another factor was likely corruption. An EC survey on corruption in the EU (2011 data, published in 2012) asked a dozen questions regarding citizens' perception of corruption in their country.[7] Table 3 summarizes some of the corruption responses for the five crisis countries: Greece, Portugal, Ireland, Spain and Italy.

Irish Households Experienced the Greatest Decline in per Capita Income

Table 2: GDP per Capita and the Percent of Change from 2007 to 2010

As at 2011

	2010 GDP PER CAPITA (EUROS)				
Population Segments	**Ireland**	**Greece**	**Spain**	**Italy**	**Portugal**
1st Quartile*	11,294	8,400	8,732	10,437	6,700
2nd Quartile	16,178	12,598	13,324	15,199	9,731
3rd Quartile	23,202	17,903	19,339	21,489	14,162
Ratio of 3rd Quartile to 1st Quartile	2.05	2.13	2.21	2.06	2.11
	CHANGE IN GDP PER CAPITA (2007–2010)				
1st Quartile	-7.2%	12.2%	1.1%	8.7%	8.8%
2nd Quartile	-8.7%	12.2%	2.4%	5.5%	9.7%
3rd Quartile	-10.2%	6.8%	3.7%	4.8%	2.2%

*Quartiles represent segments of income across a country's population. The 1st quartile is the first 25% of the population with the lowest income; each quartile represents the next highest 25% of the population.

Source: Eurostat.

4. Source: Department of Finance, Ireland.

5. Source: Economic and Social Research Institute.

6. The Gini index is a measure of a nation's economic inequality. It is expressed as a coefficient from 0 to 1 that measures statistical dispersion of wealth distribution across a country's population, with 1 being the highest level of inequality.

7. See European Commission, "Eurobarometer Corruption Report," February 2012.

Ireland Performs Better than Greece in Perceptions of Corruption

Table 3: European Commission Corruption Survey
As at 2012

% of respondents agree	Corruption is a major problem in our country	There is corruption in national institutions in our country	There is corruption in local institutions in our country	There is corruption in regional institutions in our country	Corruption is more widespread than other EU states	Corruption has increased over the past 3 years	Corruption is part of the business culture	There is widespread corruption in the private sector
Greece	99	99	95	95	80	56	88	26
Portugal	97	91	86	90	57	68	82	31
Ireland	86	84	80	79	44	45	80	25
Spain	88	93	91	91	46	61	74	40
Italy	87	95	92	92	60	56	89	27
EU-27	74	79	74	73	36	47	67	32

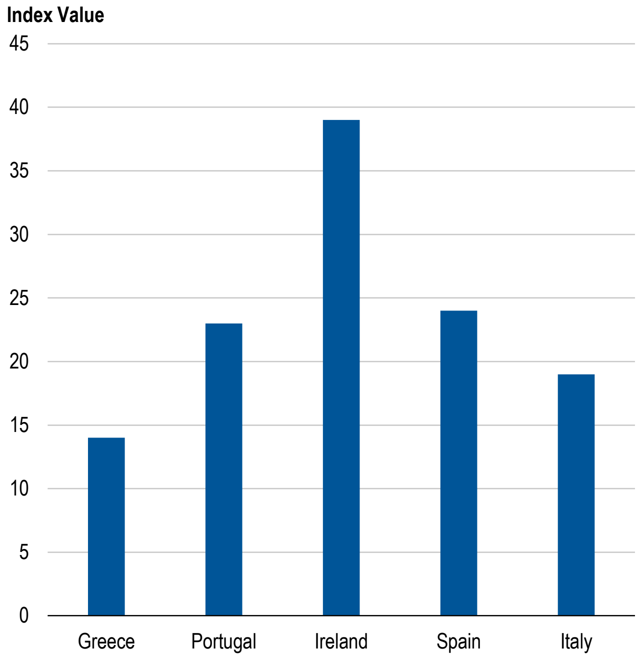
Source: European Commission. The survey was carried out in the EU-27 member states between 3/9/11 and 18/9/11, and covers the population of the respective nationalities of the EU member states, residents in each of the member states and aged 15 years and over. Prior to 2013, the EU-27 consisted of the following 27 countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

If we rank the countries using a simple index in which 1 represents the highest percentage of respondents who agree and 5 the lowest for each of the categories, and then sum them up as a summary rank, we obtain the overall ranking shown in Exhibit 8. Again, Greece ranks as the most affected by corruption, Ireland as the least affected. While corruption nests in our index as a governance subcategory, it also has social dimensions such as affecting public support for the state. A number of studies have shown that perception of corruption negatively impacts political trust and lowers the legitimacy of political institutions,[8] hampering the government's ability to carry out difficult reforms that require political capital.

These differences in social factors can have long-lived economic consequences: at the end of its economic adjustment program, Ireland needed a modest 1.5% of GDP primary surplus to ensure debt sustainability, in contrast to Greece, which still needs a 6% primary surplus.

Ireland Scores Best on the Corruption Index

Exhibit 8: Surveyed Corruption Index (Higher Scores Are Better)
As at 2012



Source: Calculations by TGM using data sourced from European Commission.

8. See Babos, Pavol, "Trust in Political Institutions: The Effect of Corruption, Electoral Winners, and the Post-Communist Legacy," *Polish Political Science Review*, February 2014; Ares, Macarena and Enrique Hernandez, "The Corrosive Effect of Corruption on Trust in Politicians: Evidence from a Natural Experiment," *Research and Politics*, April–June 2017.

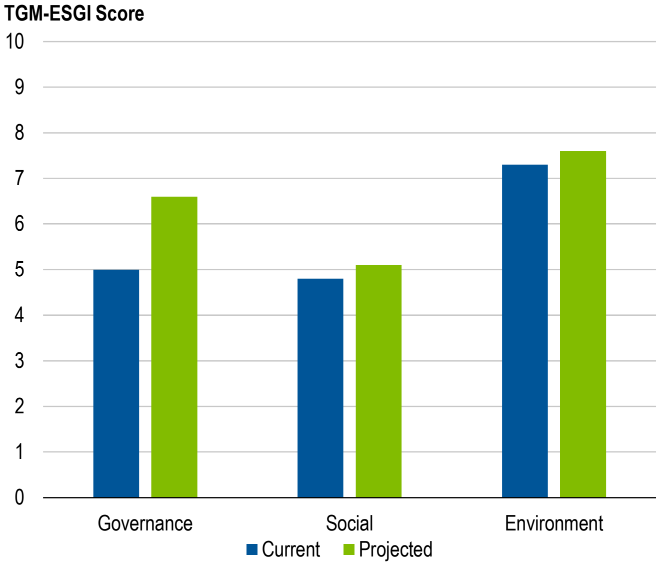
3.2 Argentina: "Most Improving"

Argentina stands out as the country where we expect the greatest ESG score improvement (see Exhibit 9). Within the medium term we project its ESG score to rise 0.8 points from 5.4 to 6.2.[9] Argentina was one of the wealthiest countries in Latin America, with a young population, a highly educated labor force and a strong agricultural sector, as well as abundant oil and mineral deposits. But after an economic crisis in the early 2000s, Argentina began a path marked by isolation from trade, government-controlled prices and unsustainable fiscal policy. The result was a falling current account surplus and declining national savings combined with lower productivity. The government also began to manipulate data to mask the incredibly high inflation that resulted from the central bank printing money to fund ministry of finance spending. World Bank governance indicators (see Exhibit 10) show that Argentina never recovered to pre-crisis levels in terms of regulatory quality and rule of law.

Similarly, corruption worsened significantly during the era of Kirchnerism, the specific strain of Peronism led by Nestor and Cristina Kirchner. Systemic corrupt behavior included nepotism in business contract allocation, unfair distribution of regional transfers from the central government and, as mentioned before, statistics distortion. Argentina became the first country to be sanctioned by the IMF for its data manipulation, particularly for inflation. Instead of allowing markets to set prices, the authorities used price controls and subsidies to artificially manage inflation; this resulted in a shortage of goods and underinvestment, turning Argentina from a net exporter of oil and gas to a net importer. The Kirchner leadership also worked consistently to undermine central bank independence and judicial power to check such behavior. As a result, Argentina's rankings in the Corruption Perceptions Index by Transparency International increased significantly in the early 2000s and underperformed compared to regional peers like Brazil, Peru and Colombia (see Exhibit 11).

Argentina Shows Significant Improvement in Projected ESG

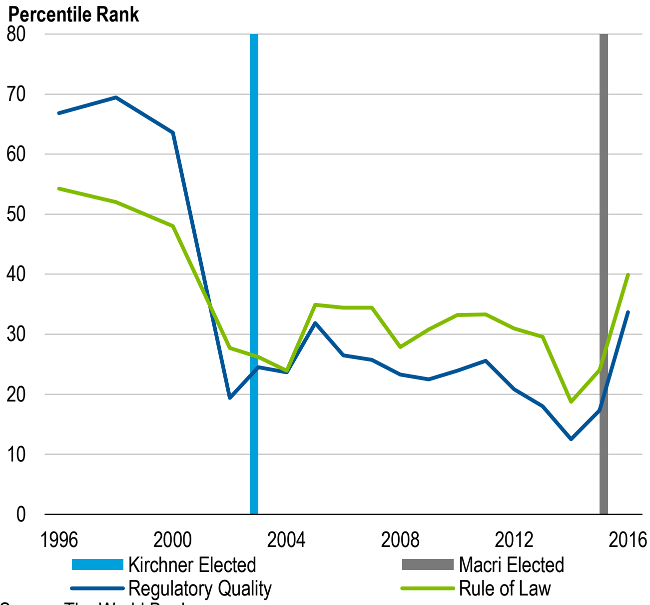
Exhibit 9: Argentina: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

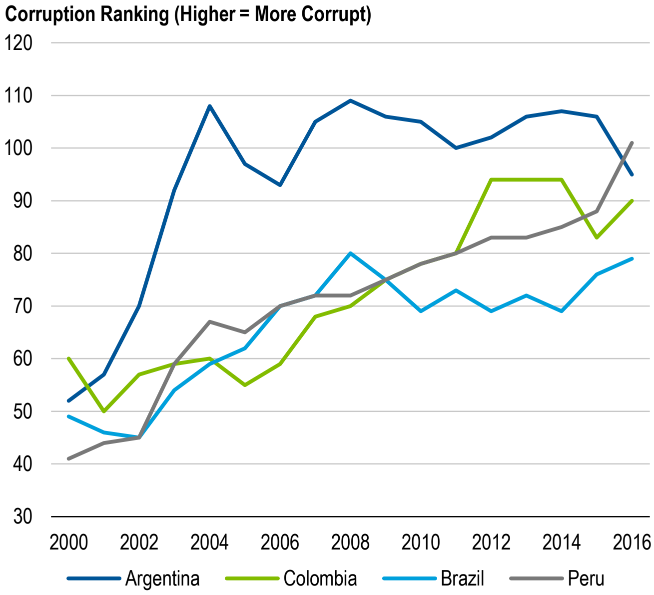
Quality of Governance Declined and Corruption Increased During the Kirchner Era

Exhibit 10: Argentina: World Bank Governance Indicators Rank
1996–2016



Source: The World Bank.

Exhibit 11: Corruption Perceptions Index Rank by Country
2000–2016

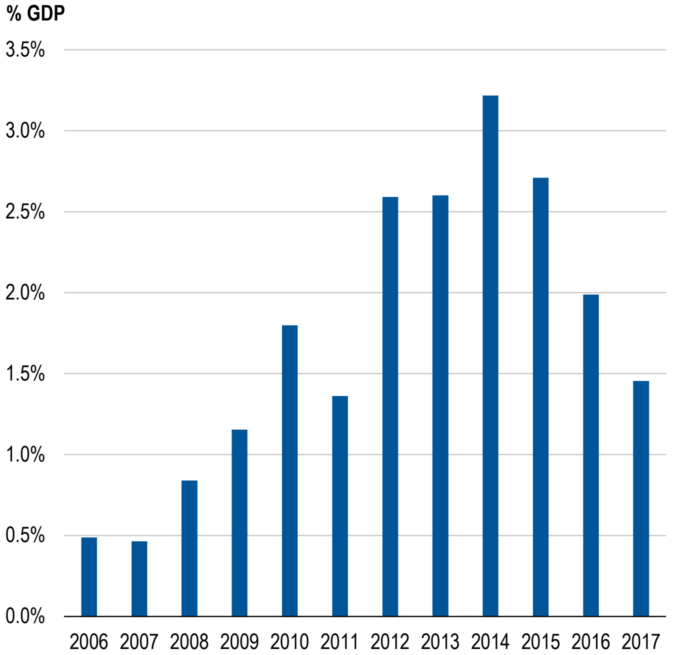


Source: Transparency International.

9. Our medium-term projections are for the next three years.

The Government of Argentina Has Been Reducing Transfers from the Central Bank

Exhibit 12: Argentina: Transfers from the Central Bank (% of GDP)
2006–2017



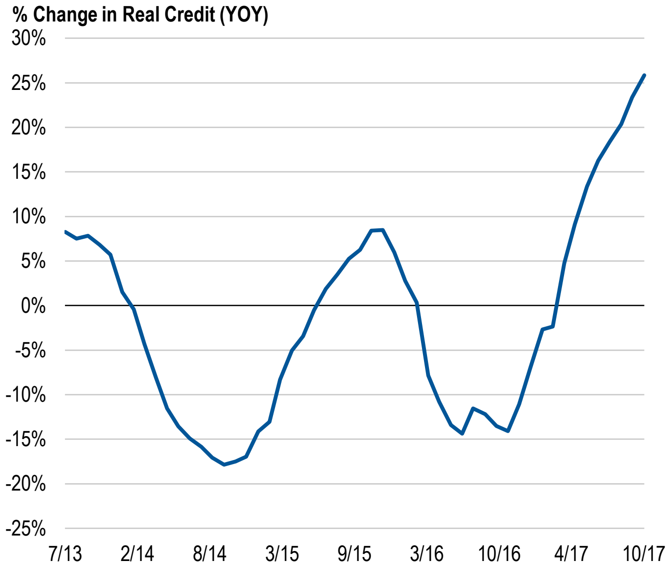
Source: Central Bank of Argentina; IMF estimate for 2017 GDP figure.

These dynamics began changing with the election of center-right leaning President Mauricio Macri in late 2015. In the past two years the government has launched a number of reforms to undo over a decade of damage. Notable achievements have included reestablishing de-facto central bank independence, clearing a significant portion of export and import restrictions, and embarking on a gradual path of fiscal adjustment. The government also floated the Argentine peso and adjusted the price of public utilities and transportation—tough decisions given the inflationary impacts. But the central bank moved capably to hike interest rates, and the government recognized it must enact policies necessary for long-term economic viability, despite the negative short-term consequences. One significant move was the government's decision to begin reducing fiscal transfers from the central bank, a practice that began during the Kirchner era to finance growing budget deficits (see Exhibit 12). The government also set up an independent statistics agency to start providing reliable data again, and the IMF announced in 2016 that the country can be trusted to provide accurate inflation estimates again. We can already see that attitude reflected in the previous charts; there has been improvement in both the World Bank's governance indicators as well as Argentina's corruption rankings in 2016 (see Exhibits 10 and 11).

We expect further progress. The government performed well during Congressional elections in October 2017. Not only did this victory result in stronger momentum for reform, but it also showed that the Argentinian population has turned away from the populist policies of Peronism, which dominated 20th century politics, in favor of a more orthodox policy approach. Government effectiveness should improve with the recent electoral victory, and we expect the policy mix to strengthen as the governing coalition continues to push forward reforms. Important issues on the agenda include tax reform to lower the corporate tax rate and a bill to improve labor market flexibility. These policy initiatives should help to improve competitiveness, encourage investment and lower unemployment levels. We also expect these reforms to begin to have a greater positive impact

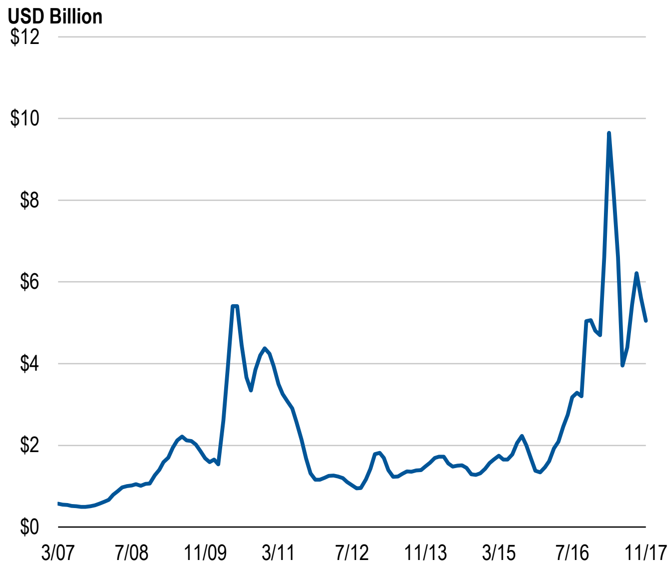
Confidence Is Returning to Argentina's Banking Sector

Exhibit 13: Argentina: Real Credit to Private Sector
July 2013–October 2017



Source: Central Bank of Argentina.

Exhibit 14: Argentina: Foreign Currency Deposits in Banking System
March 2007–November 2017



Source: Central Bank of Argentina.

on economic activity. For example, Exhibits 13 and 14 show that real credit to the private sector and foreign currency deposits have already expanded significantly as confidence and flexibility returned to the banking sector. We are optimistic that this renewed financial activity has the potential to lift overall economic performance moving forward.

We continue to see Argentina as a unique case in which strong economic fundamentals in combination with the right policy mix can lead to a swift revival of ESG scores. A rocky history of mismanagement resulted in both inconsistent economic performance and a challenging relationship with foreign investors. But with the right leadership and popular support, we foresee a more sustainable economic path for Argentina. There remains much to be done, however, in reviving old industries and building new ones, as well as improving technological adoption and efficiency. Breaking down old administrative practices, implanting reforms and waiting for those reforms to become effective are all time-consuming processes and require patience from investors. Thus we see it as critical to monitor dedication from both the government and the population moving forward.

3.3 India: Finally Turning Around

India has long had enormous economic potential, but following its independence from Great Britain, the country closed itself off from global trade and investment flows in favor of an inward-looking import substitution growth model. This was accompanied by heavy state intervention and regulation under the “License Raj” system that weakened competitiveness through bureaucracy and tight labor laws. The government also underpaid government officials and overtaxed the population, generating systemic public corruption and tax evasion.

The result has been one of the lowest tax collection rates globally, a weak manufacturing sector and a lack of basic infrastructure. India also consistently ranks as one of the most corrupt countries, topping rankings in Asia in the most recent survey by Transparency International. With a hampered domestic economy and barriers blocking external activity, the nation’s rapid population growth became a challenge rather than an advantage. A weak education system (with the notable exception of India’s elite technology and management institutes) and the economy’s inability to create jobs resulted in high illiteracy and unemployment levels. When comparing India to other young populations, it clearly underperforms in terms of education level, labor force participation rate and youth unemployment (see Table 4). India scores relatively well only in skilled labor, highlighting the extent of inequality.

In 2014 Narendra Modi was elected prime minister on a campaign of economic development. He has pushed for privatization and liberalization of the economy, labor reform and combatting corruption. A national goods and services tax (GST) was implemented in the summer of 2017, intended to streamline the tax collection process. The government has also deregulated diesel prices to reduce subsidy spending and has begun the process of doing the same to natural gas. Other important reforms have included simplifying business licensing processes and bankruptcy procedures, as well as opening up domestic sectors to foreign investment. As a result, India rose 30 places in the World Bank’s Doing Business Index in 2017 (see Exhibit 15). Noticeable improvements occurred in areas such as access to credit, paying taxes and resolving insolvency. Foreign investors have noticed: outstanding institutional ownership of Indian debt has more than doubled under Modi’s term (see Exhibit 16).

India Lags Behind Other Young Countries in Human Capital Development

Table 4: Comparison of Education and Labor Metrics by Country
As at December 2017

EDUCATION AND LABOR METRICS COMPARED

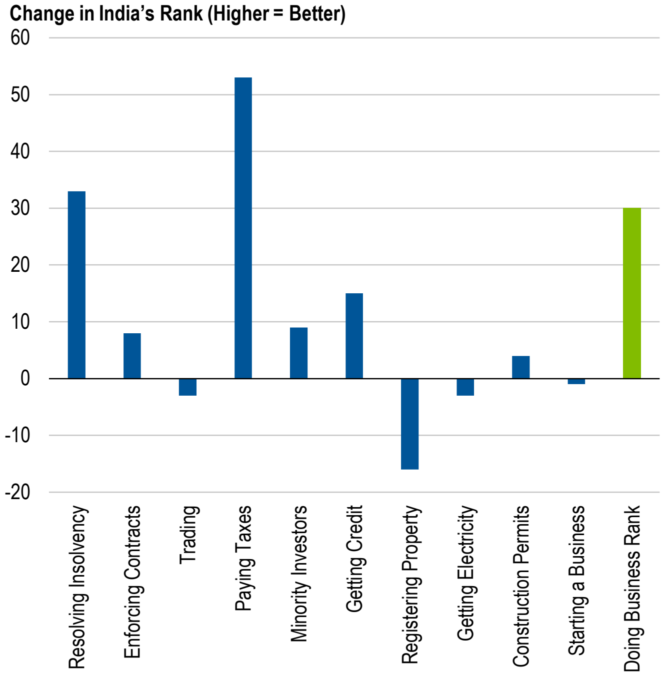
	India	Philippines	Indonesia	Bangladesh	Mexico	Peru
Median Age of Population	26.7	25.6	28	29	27.5	27.5
Mean Years of Education	5.8	8.4	7.7	5.2	8.8	9.2
Labor Force Participation Rate	52.5	63.5	67.2	57.2	59.7	68.5
Youth Unemployment	27.5	22.7	24.8	20.2	19.6	22.4
Skilled Labor Rank	79	60	80	104	48	119

Source: The Global Human Capital Report, World Economic Forum.

India's Ease of Doing Business Score Increased by 30 Spots—Investors Have Noticed

Exhibit 15: India: World Bank Doing Business Index, Change in Rank, 2016–2017

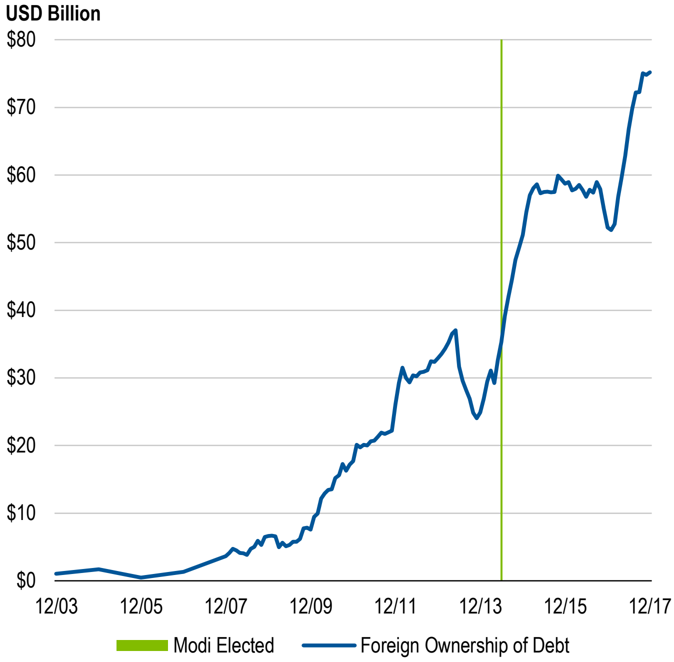
As at December 2017



Source: The World Bank.

Exhibit 16: India: Foreign Ownership of Outstanding Debt

December 2003–December 2017



Source: India Central Statistical Organization.

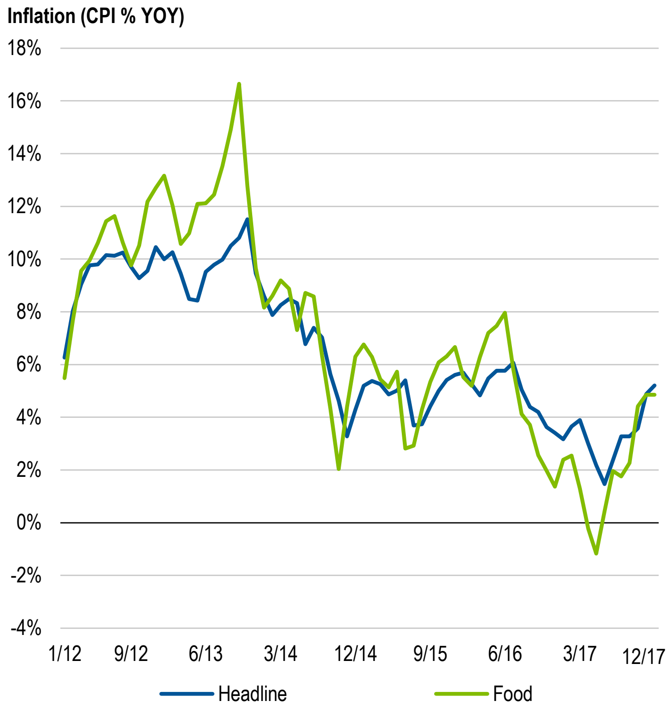
Under its former governor, Raghuram Rajan, the Reserve Bank of India (RBI) focused on reducing inflation, bringing it down from 10% to 4% (see Exhibit 17) by hiking the policy rate. This success in easing prices has continued under the new bank leadership, due to an effective combination of prudent central bank policy and government supervision. The RBI has been determined to bring credibility to the new inflation-targeting regime established in 2016, and the government has improved its management of food prices through the use of buffer stocks and a crackdown on hoarding.

Our research team expects India's ESG score to increase by 0.4,[10] the second greatest improvement within the sample (see Exhibit 18). The government remains reform-minded, and we see its effectiveness growing. In terms of policy, focus will likely remain on improving tax collection using the information from de-monetization and more sophisticated tools like online tax reporting.[11] The government has also begun to push for land acquisition reform, but is allowing states to take the lead on the controversial measure. States in India have historically operated with great independence. Modi's Bharatiya Janata Party has been successful in regional elections as well as in forming alliances, and now controls 18 of 29 states in the country. These provinces have also been effective partners in spearheading reforms that can be difficult to pass on the national level. With Modi at the helm, the government has

Inflation Has Moderated Significantly Following Improved Management

Exhibit 17: India: Inflation

January 2012–December 2017



Source: India Central Statistical Organization.

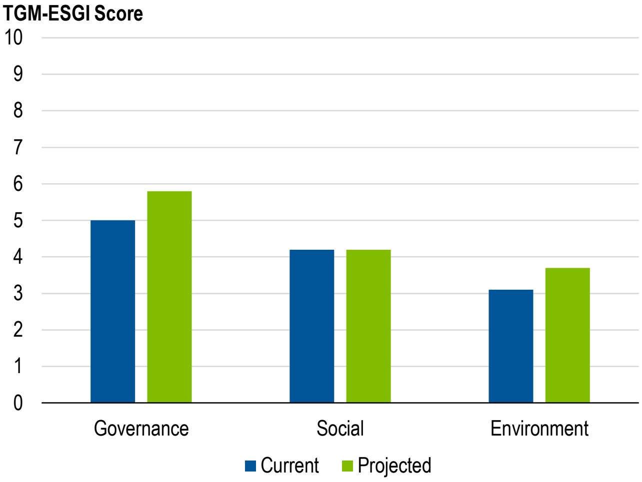
10. Our medium-term projections are for the next three years.
11. Demonetization in India was a program implemented by Prime Minister Narendra Modi in November/December 2016 to remove specific currency notes from circulation in an effort to bring money out of the shadow economies and into the formal economy.

become more pro-active and efficient from the top down. With national elections scheduled for 2019, thus far it seems Modi remains popular, despite some reforms coming with short-term pain; a successful election in his home state of Gujarat this past December was an important litmus test of his popular support.

Challenges in India still abound. While better access to credit and a friendlier business environment will likely raise domestic activity, the government needs to improve labor competitiveness and ensure education matches job demands. Despite government efforts, the manufacturing industry remains very small but needs to grow to absorb more of the labor force. There also continues to be a high level of bad debt within the banking system that needs to be addressed. Many of these issues are intricately connected with ESG factors like human capital, labor, demographics and policy mix. But we have confidence that under the current regime, India will make progress in addressing these challenges.

We Expect India's ESG Scores to Improve

Exhibit 18: India: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

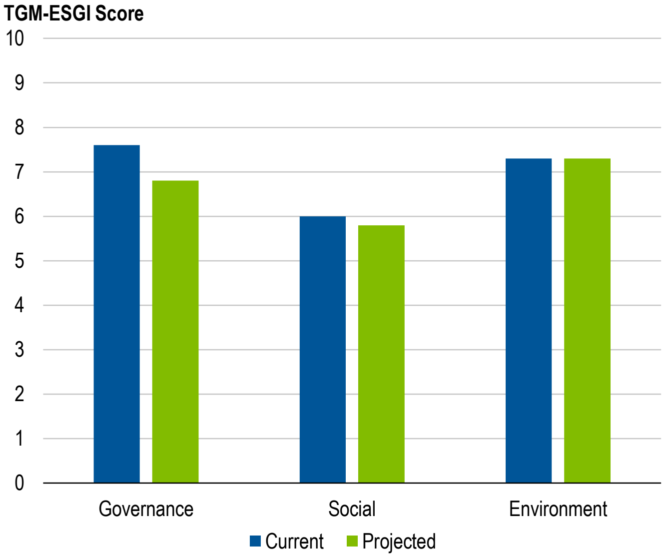
3.4 Poland: Backtracking

In contrast to Argentina and India, Poland (which does relatively well in our current ranking) has the worst projected deterioration within our 44-country sample. Our analysts expect the country's total ESG score to fall by 0.4,[12] entirely due to broad-based deterioration in governance (see Exhibit 19).

Until recently, Poland was considered one of the most successful examples of EU integration and a case study in how to implement institutional reforms after the fall of the Soviet Union. The country benefited immensely from a 20-year, US$250 billion aid package that focused on building roads and schools. Exhibit 20 shows that Poland's growth rate has been one of the strongest in the EU since its accession in 2004, and Poland was the only EU member country that did not fall into recession during the global financial crisis or the eurozone sovereign debt crisis. Along with strong growth, Poland experienced significant gains in quality of life measures like education and poverty reduction. Strong institutions, a flexible

Poland's TGM-ESGI Score Is Projected to Deteriorate

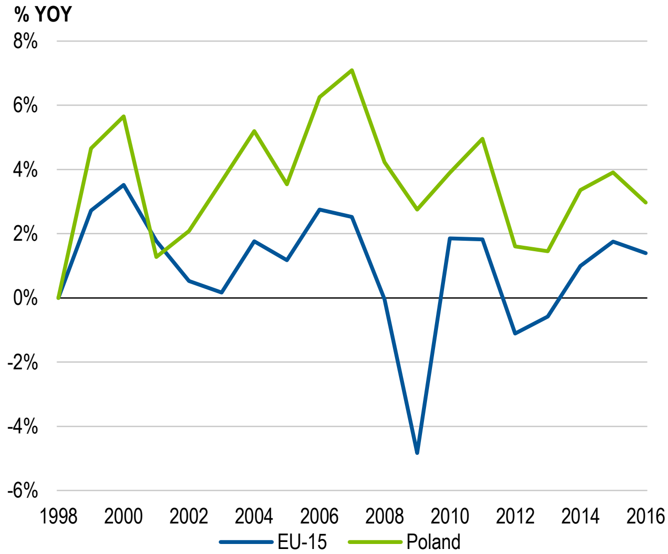
Exhibit 19: Poland: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

Growth in Poland Has Been Strong Compared to the EU Average

Exhibit 20: Poland and EU-15: GDP per Capita Growth
1998–2016



Source: The World Bank. Prior to 2004, the EU-15 consisted of the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

12. Our medium-term projections are for the next three years.

labor market, an investment-friendly environment and global trade integration all contributed to Poland's economic ascent. Yet the country has recently been turning away from many of these economic foundations in favor of nationalistic and populist policies.

Despite the strong headline statistics, there was underlying discontent within Poland. Unequal income distribution, distrust of political elite and disagreement with the EU's policies led to a large majority for the conservative Law and Justice Party (PiS) in the 2015 elections. The PiS campaigned on a strong nationalist, anti-immigration message and promised a lower retirement age as well as monthly subsidies for households with children. Within months of entering office, PiS fulfilled those promises; it refused to take in refugees, as had been agreed to under the previous government, it reversed the retirement age increase, and it implemented a program named 500+, which provides households with two or more children with PLN 500 per child per month.

Over the following two years, Poland adopted more than 13 laws affecting the entire structure of the justice system; in many cases these laws have raised concerns that they might enable political interference in the organization, power, administration and functioning of the justice system.[13] Changes to the justice system include:

- The Supreme Court law that lowers the retirement age of judges and forces a substantial share of judges into retirement, and gives the country's president discretionary power to prolong the mandates. The law also allows the courts to reopen earlier final judgements.
- The Ordinary Courts Organization law that gives discretionary power to the Minister of Justice to prolong mandates of judges and to appoint and dismiss presidents of the courts.
- The fact that the Constitutional Tribunal's judgments were not published and not fully implemented.

Other measures have included:

- Parliament passed a bill that gives control over organizing elections to the government, rather than a panel of top judges. This could diminish the accountability of the governing party in front of the electorate, leading to a rise in country risk.
- The government plans to overhaul the media law, with the apparent intention of increasing domestic ownership and control of media. Meddling with the free media could affect transparency in government policy and increase country risk.
- The government has imposed a Sunday shopping ban. While restrictions on shopping days and hours are not uncommon in continental Europe, Poland's decision bucks a moderate European trend of greater liberalization and might have some adverse impact on consumer spending.

13. Source: European Commission.
14. Source: The World Bank, 2015.

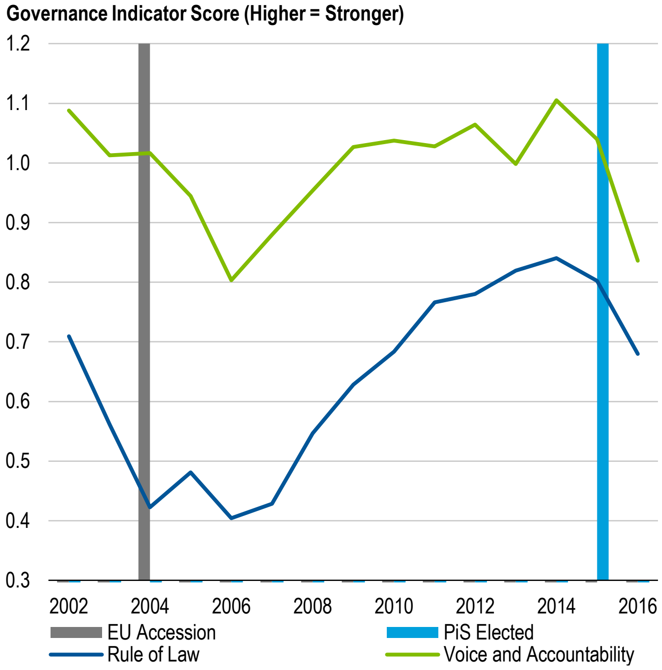
The EC has noted with concern that some of these measures could undermine the independence of the judiciary, the separation of powers and legal certainty. It has therefore opened proceedings that could lead to sanctions against Poland. These concerns are confirmed by the World Bank's governance indicators, which show significant declines for both rule of law and voice and accountability measures in 2016 (see Exhibit 21).

This backtracking on governance standards risks undermining Poland's influence in the EU—a significant drawback, given that Poland's demographic and economic size places it as the strongest of the Central and Eastern European EU members and in a position to carry important weight in discussions with the likes of France and Germany. It also already has had an economic impact: Polish leaders acknowledged that the disagreements and legal tensions with the EU complicate the negotiations for the 2021–2027 EU Budget Cycle, and might result in Poland receiving a lower amount of EU funds. The tensions, and the risk of further populist measures and of a further deterioration in legal certainty, also create more uncertainty for investors and could negatively impact foreign investment flows.

This slippage comes against the background of adverse demographic trends. Poland has one of the fastest aging populations within the world, with a national fertility rate of 1.32.[14] According to OECD estimates, the country's working age population will fall by 29% by 2050, the most within Europe (see

Poland's Institutional Strength Has Weakened in Recent Years

Exhibit 21: Poland: Institutional Strength Indicators
2002–2016



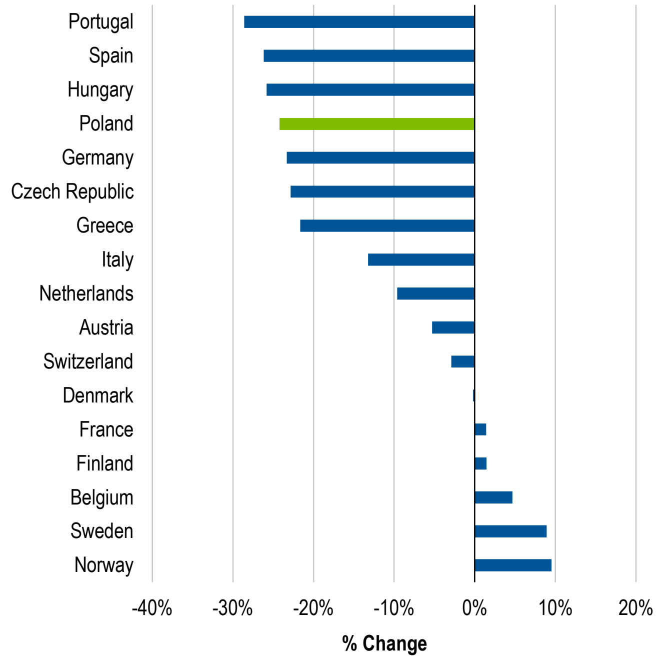
Source: The World Bank, Governance Indicators.

Exhibit 22). This aging issue is compounded by a low female labor force participation rate that is nearly 3% below the OECD average (see Exhibit 23). While Poland had made significant gains in closing the gap in the past decade, progress appears to have plateaued, and some of the recent policies might prove counterproductive: experts have estimated that one short-term effect of the 500+ plan could be a decline in female labor participation, as the government subsidy discourages women, particularly in rural areas, from working. The party's anti-immigration stance could also limit the scope to slow the decline in the working age population.

So far the deterioration in ESG conditions does not appear to have had a significant effect on the Polish economy. Strong growth throughout the euro area since 2016, including among Poland's largest trade partners, has more than compensated for the government's poor economic policies and the country's structural weaknesses. Yet Poland's increasing distance from factors that contributed to nearly two decades of economic growth, reflected in a decline in its ESG scores, raises questions for us regarding Poland's medium- to long-term potential, especially when global economic conditions are no longer so supportive.

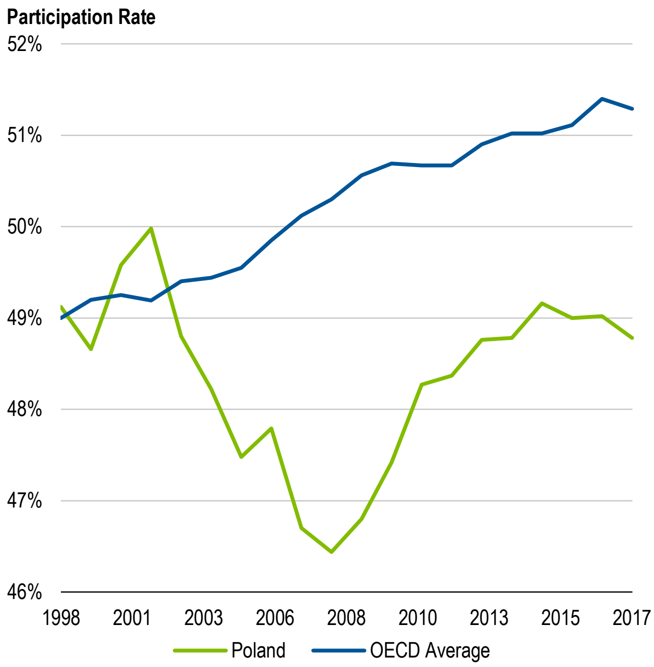
Poland Is Facing Challenging Demographic Trends

Exhibit 22: Poland: Working Age Population
2016–2050 (Estimate) (% Change)



Source: OECD.

Exhibit 23: Poland: Female Labor Force Participation
1998–2017



Source: The World Bank.

3.5 Venezuela: Conditions Can Always Deteriorate

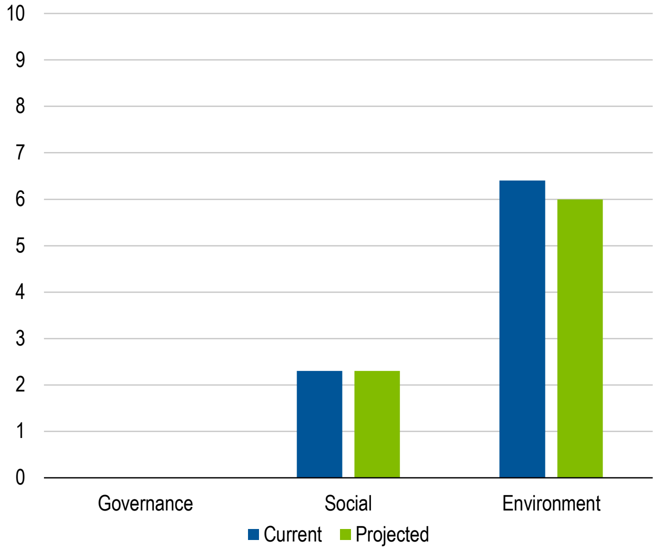
Venezuela has the lowest score within our ESG sample, as shown in Exhibit 24. It shows how weak ESG factors can lead to a macroeconomic crisis. Venezuela scored a 0 in all of the governance subcategories, according to both global indexes and our analysis. It also performed very weakly in social indicators, although relatively higher scores for infrastructure, human capital and demographics are keeping the total above 0. And yet we expect a further—albeit moderate—deterioration in Venezuela's TGM-ESGI score.

Venezuela has been under the influence of Chavismo, named for the country's previous president, Hugo Chavez, since the late 1990s. Chavez used Venezuela's massive oil reserves, even greater than Saudi Arabia's, to fund social welfare programs and subsidies and to keep himself in power. Oil wealth from skyrocketing prices in the 2000s allowed his policies to expand access to housing and health care, as well as increase literacy rates and decrease poverty. But the economy suffered from a classic "Dutch disease syndrome"[15]

15. "Dutch disease" as an economic concept is a rise in economic activity in one sector that causes declines in other sectors.

Venezuela Has the Weakest ESG Scores of Our Sample Comparisons

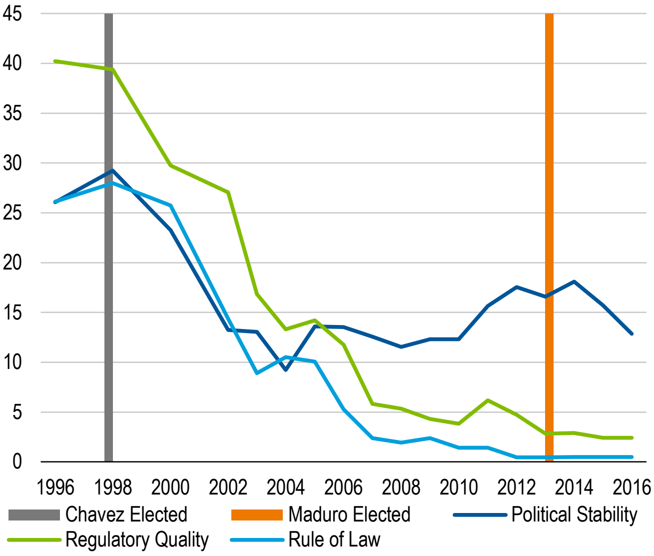
Exhibit 24: Venezuela: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

Governance Quality Has Been Poor Since Chavez

Exhibit 25: Venezuela: World Bank Governance Indicators Rank
1996–2016



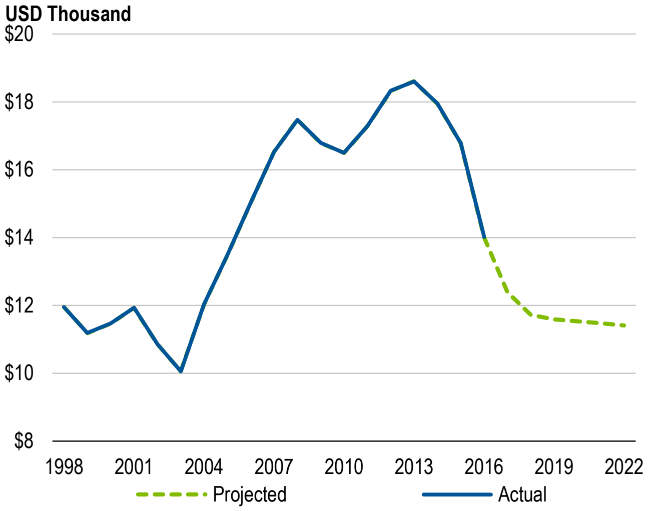
Source: The World Bank.

and developed a complete dependence on funds from petroleum production. Subsidies caused supply shortages, and strict control of private enterprise resulted in low domestic, as well as foreign, investment. The issues became further exacerbated with Chavez's death in 2013 and when oil prices fell in 2014.

His successor, Nicolás Maduro, does not have the charisma or the popular loyalty that Chavez inspired. Maduro has also governed through oil prices that are approximately half of what they were during Chavez's reign. The government no longer has the funds to buy social stability, and the resulting economic crisis has thrown the country into chaos. The government has stopped publishing inflation estimates, but the opposition party has said that prices are nearly 600% higher in the first nine months of 2017 compared to the same period in 2016, and the IMF expects inflation to exceed 2000% in 2018. GDP per capita has contracted significantly in the last few years as the country experienced severe shortages of goods from food to medication. Crime rates have skyrocketed (see Exhibit 27), and previously eradicated diseases like diphtheria have returned due to the lack of vaccines.

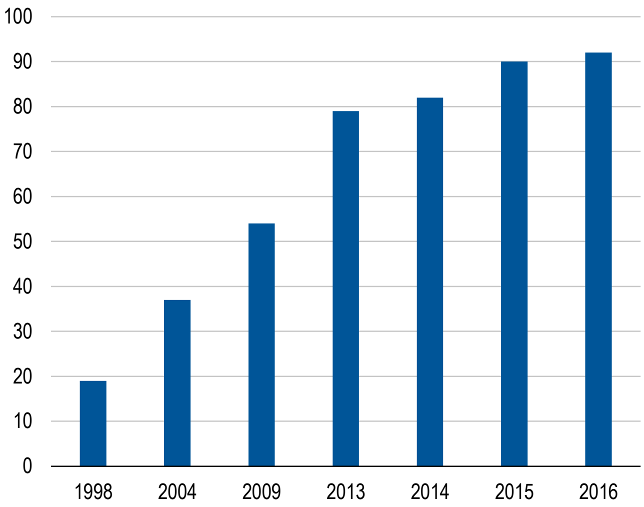
Venezuela: Living Conditions Have Been Deteriorating Quickly

Exhibit 26: Venezuela: GDP per Capita, Based on Purchasing Power Parity
1998–2016, Projections to December 2022



Source: IMF.

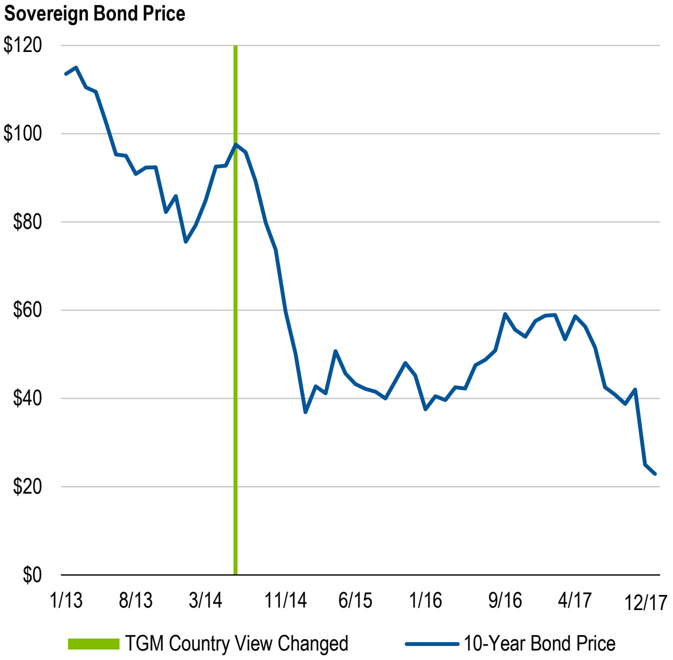
Exhibit 27: Venezuela: Homicide Rate per 100,000 People
1998–2016



Source: Venezuelan Observatory of Violence.

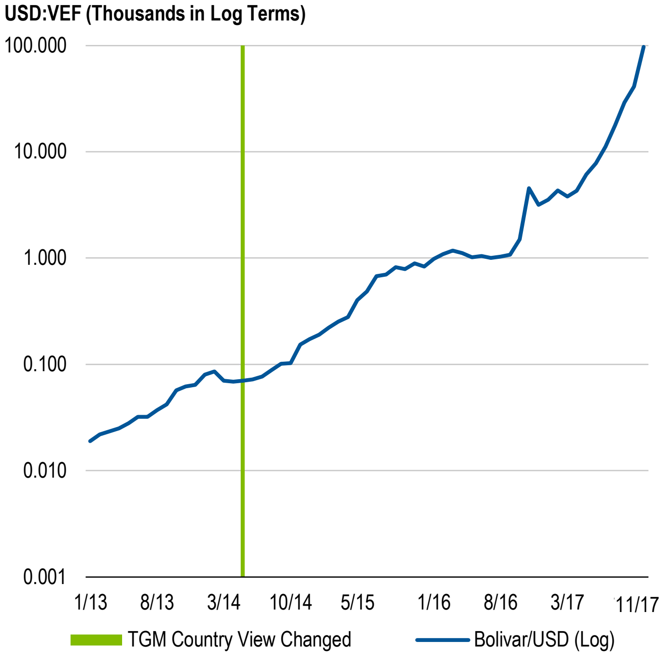
Venezuelan Asset Prices Have Collapsed

Exhibit 28: Venezuela: Price of 10-Year Sovereign Bonds
January 2013–December 2017



Source: Bloomberg.

Exhibit 29: Venezuela: Black Market Rate of Bolivar to US Dollar
January 2013–November 2017



Source: DolarToday.

The result has been a government turning to harsh authoritarian measures to retain control facing an increasingly angry domestic population and critical international community. In the face of massive riots, the executive branch has come to rely on the military for support and control. The generals have been given control of food distribution and thus the opportunity to make large profits selling basic goods to a desperate population. Maduro also formed a new Constituent Assembly that has overtaken legislative power from the opposition-filled Congress and banned a number of opposition parties from running in the 2018 presidential election. Without food, water and medicine, the population will probably not back down, and at this point there are no signs of acquiescence from the government either. While nobody has clarity at this point on how the crisis in Venezuela will be resolved, conditions will remain challenging for the foreseeable future.

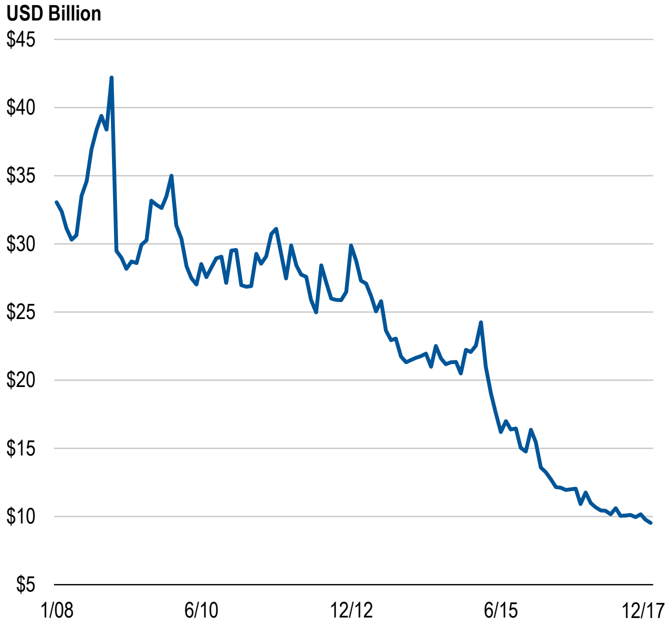
These conditions are incredibly difficult for the Venezuelan people, but also a warning to foreign investors. Sustainable economic development cannot progress in the context of such an appalling political and social environment.

The impact on financial variables has been dramatic. Exhibits 28 and 29 show that bond prices have fallen around 75% over the last two and a half years, and the bolivar's exchange rate on the black market has reached 124,190[16] per US$1 compared to the government's official rate of 9 (and still rising rapidly). Foreign reserves have dropped below US$10 billion, compared to US$60 billion in outstanding bonds (see Exhibit 30).

Venezuela reads as a strong cautionary tale to sovereign debt investors who do not take into account ESG metrics when making allocations: weakening ESG indicators are often the lead up to economic deterioration and eventual asset price decline.

Venezuela's Foreign Reserves Have Fallen and Are Insufficient to Cover Foreign Debt

Exhibit 30: Venezuela: Foreign Reserves
January 2008–December 2017



Source: Central Bank of Venezuela.

16. Source: DolarToday, 19/12/17.

3.6 Japan: The Importance of Environmental Factors

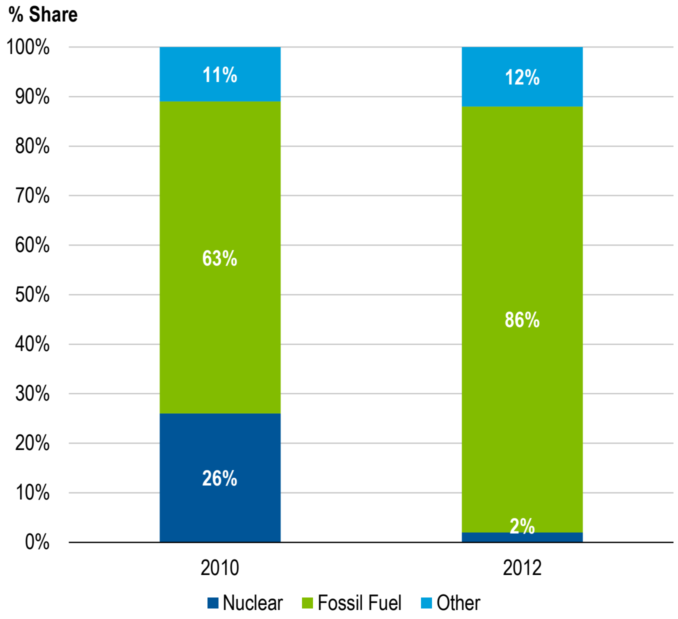
One of the largest natural disasters in modern history was the 2011 Tohoku earthquake and tsunami in Japan. The earthquake and tsunami combination also resulted in a meltdown at the Fukushima Daiichi nuclear plant, causing what has now come to be known as Japan's Triple Disaster. A horrific number of lives were lost and even more were displaced, but the disaster also caused large economic impacts; the four prefectures most heavily affected by the earthquake accounted for about 6.2% of Japan's GDP,[17] and broader regional supply chains in Asia were also impacted by the disasters as rolling blackouts occurred as a result of electricity production shortages.

One major consequence, and likely the most long-lasting, has been to Japan's energy consumption. As a resource-poor country that nevertheless aimed for energy independence, Japan began developing nuclear power in the mid-20th century and made nuclear energy a strategic priority in the 1970s. By 2010, nuclear power accounted for about a quarter of total electricity generation with the goal of increasing that level to 40%. These plans continued despite Japan's high exposure to natural disasters such as earthquakes because of its geographic location.

The meltdown at Fukushima and the resulting radioactivity risks changed the public's opinion of nuclear power, and all such plants were shut down in the aftermath. The result was a significant increase in fuel imports to plug the hole that nuclear power had previously filled; fossil fuels' share of electricity generation increased by 23% while nuclear energy dropped to 2% by 2012 (see Exhibit 31). A weak yen and record-high commodity prices during this time caused the fuel deficit to balloon and dragged down Japan's current account surplus by more than 1% of GDP (see Exhibit 32).

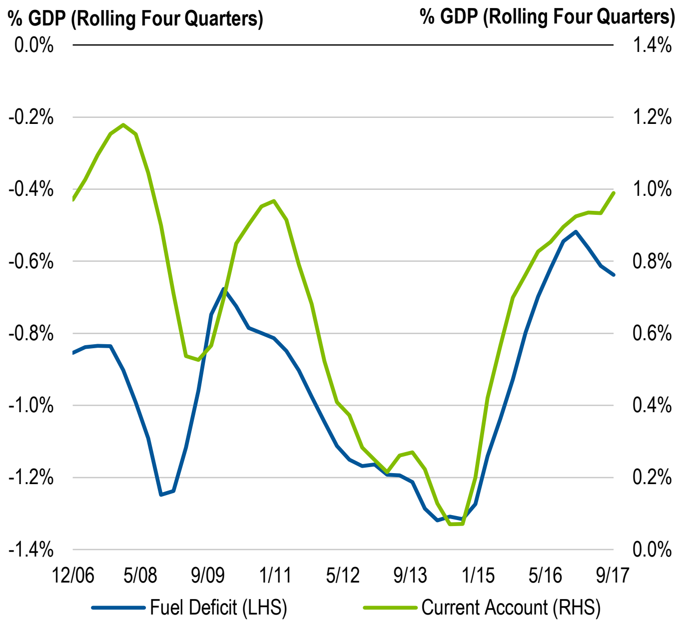
Greater Fuel Imports Due to the Meltdown Increased Japan's Current Account Deficit

Exhibit 31: Japan: Electricity Generation by Source
2010 and 2012



Source: US Energy Information Administration.

Exhibit 32: Japan: Current Account vs. Fuel Deficit
Q1 2006–Q3 2017



Source: Ministry of Finance, Bank of Japan.

17. Source: Japan Statistical Yearbook, 2011.

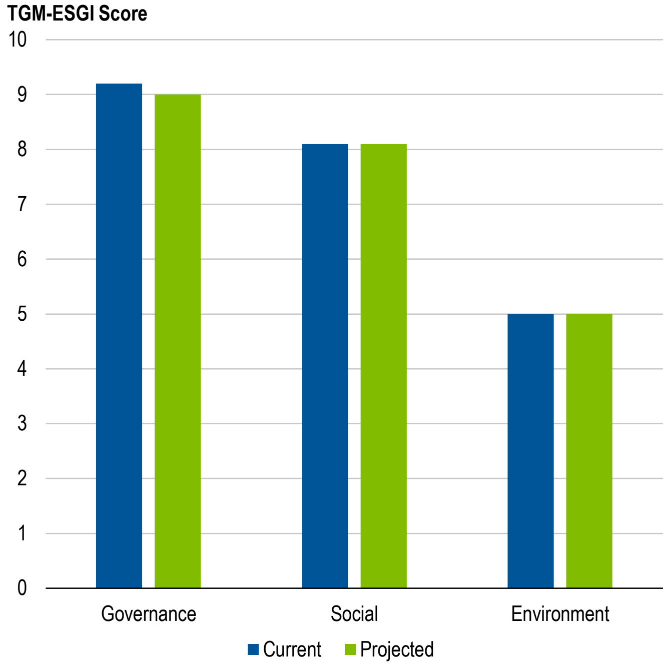
The Japanese Yen Depreciated Against the US Dollar

Exhibit 33: Japan: Yen Spot Price
January 2010–December 2014

Source: Bloomberg.

Japan Scores Well on Government and Social, but Relatively Weak on Environmental

Exhibit 34: Japan: Current and Projected Conditions (TGM-ESGI)
As at February 2018



Source: TGM-ESGI. Our medium-term projections are for the next three years.

A more short-term impact was on the currency (see Exhibit 33). While we already had views on the yen due to the expected growth divergence between the US and Japan and the effects that would have on monetary policy and interest rate differentials, the earthquake further solidified our conviction in that outlook. We expected the natural disaster to amplify the business cycle and slow down consumer spending to further exacerbate that growth differential.

Given the devastating effects of the earthquake, its impact on the economy as a whole was much more contained than feared—in large part thanks to the strength of Japan's social and governance institutions, reflected in its high S and G scores (see Exhibit 34). From rapid evacuations following the meltdown of Fukushima to the effective management of power shortages, Japan's solid institutions and social cohesion protected the country from much of the far more severe consequences of a massive natural disaster. Even major political events following the earthquake, including the resignation of then Prime Minister Naoto Kan, did not significantly destabilize the country's macroeconomic trajectory. Japan therefore serves as a reminder of both the potential impact of environmental factors and the resilience that strong social and governance institutions afford to a country.

Conclusion

ESG factors have started to be recognized in fixed income investing as value-adding indicators of economic performance; an increasing number of portfolio managers and investment specialists are now beginning to incorporate some form of ESG into their decision-making process. We have long seen ESG as an especially critical tool for evaluating long-term economic performance, and by extension prospects for sovereign debt value, as its components align naturally with our analytical approach based on political and macroeconomic fundamentals.

In this paper we have outlined our rigorous approach to ESG, based on our proprietary TGM-ESGI, which creates a comprehensive measurement to facilitate cross-country comparison, along with a forward-looking component based on our analysts' expert views. The index correlates with macro conditions and can serve as a key indicator of important shifts in economic and asset price performance, as illustrated by the case studies discussed in the paper.

Appendix

GOVERNANCE	Source	Description
Effectiveness	World Bank Governance Indicators, Government Effectiveness	The index captures the quality of government and its degree of independence from political pressures, the quality of policy formation and the credibility of the government's commitment to such policies. Specific measures include bureaucratic quality, institutional effectiveness and public surveys of satisfaction with basic services such as health and education.
Policy Mix	World Bank Governance Indicators, Regulatory Quality	Regulatory quality analyzes a government's ability to formulate and implement sound policies. Examples of subindexes include burden of regulations, unfair competitive practices and tax inconsistency.
Corruption	World Bank Governance Indicators, Control of Corruption	Control of corruption looks at the extent to which public officials exercise power for private gain, at both federal and local levels. Measures include corruption among public officials, state capture, level of "petty corruption" between government and citizens.
Institutional Strength	World Bank Governance Indicators, Rule of Law	This index takes into account the extent to which the rules of society are followed and the quality of contract enforcement. Examples include strength of the courts and the police.
Business Climate	World Bank Doing Business Index	The doing business index captures the business-friendliness of a country's rules and institutions. Subindexes include starting a business, getting electricity, registering property and resolving insolvency.

SOCIAL	Source	Description
Social Cohesion	World Bank Governance Indicators, Political Stability and Absence of Violence	This index measures perceptions of the likelihood of politically motivated violence and social instability. Issues considered include ethnic tensions, violent demonstrations and terrorism.
Infrastructure	World Bank Logistics Performance Index, Infrastructure	The infrastructure subindex of the larger logistics performance index measures the quality of infrastructure, particularly related to transport and trade.
Human Capital	World Economic Forum, Human Capital Report	The Human Capital Report analyzes the skill of a country's workforce, focusing on investment in formal education, accumulation of skills through work and the breadth and depth of those skills.
Labor	Heritage Foundation Labor Freedom Index, World Bank GINI Index (last available)	Labor freedom captures the regulatory framework of a country's labor market, including minimum wage, severance requirements, and restraints on hiring or hours worked. The GINI index measures the distribution of wealth within the population.
Demographics	World Bank Youth Unemployment, World Bank Labor Force Growth	Youth unemployment measures the amount of youth that are participating in the labor force but without work. Labor force growth looks at the change in labor force size, or the amount of individuals age 15 and older who are working or are seeking work.

ENVIRONMENT	Source	Description
Unsustainable Practices	Yale Environmental Performance Index	This index measures both environmental health and ecosystem vitality. Issues considered include air quality, waste management, species protection and trend in carbon intensity.
Weather Risk	United Nations Institution for Environment and Human Security World Risk Report	This report captures the risk of countries to natural disaster, including risk of exposure, vulnerability of infrastructure, and preparedness through emergency response and early warning systems.
Resource Scarcity	World Energy Council Energy Security, Economist Intelligence Unit, Global Food Security Index, World Resources Institute Water Stress	We use a combination of the three most prevalent resources: energy, food and water. Energy security measures the effective management of energy supply from domestic and external sources and the ability of providers to meet demand. Food security analyzes affordability, availability and quality of food. Water stress captures the ratio of total withdrawal to total renewal supply.

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For Exhibits 5, 9, 12, 18, 19, 22, 24, 26 and 34 there is no assurance that any estimate or projection will be realized.

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