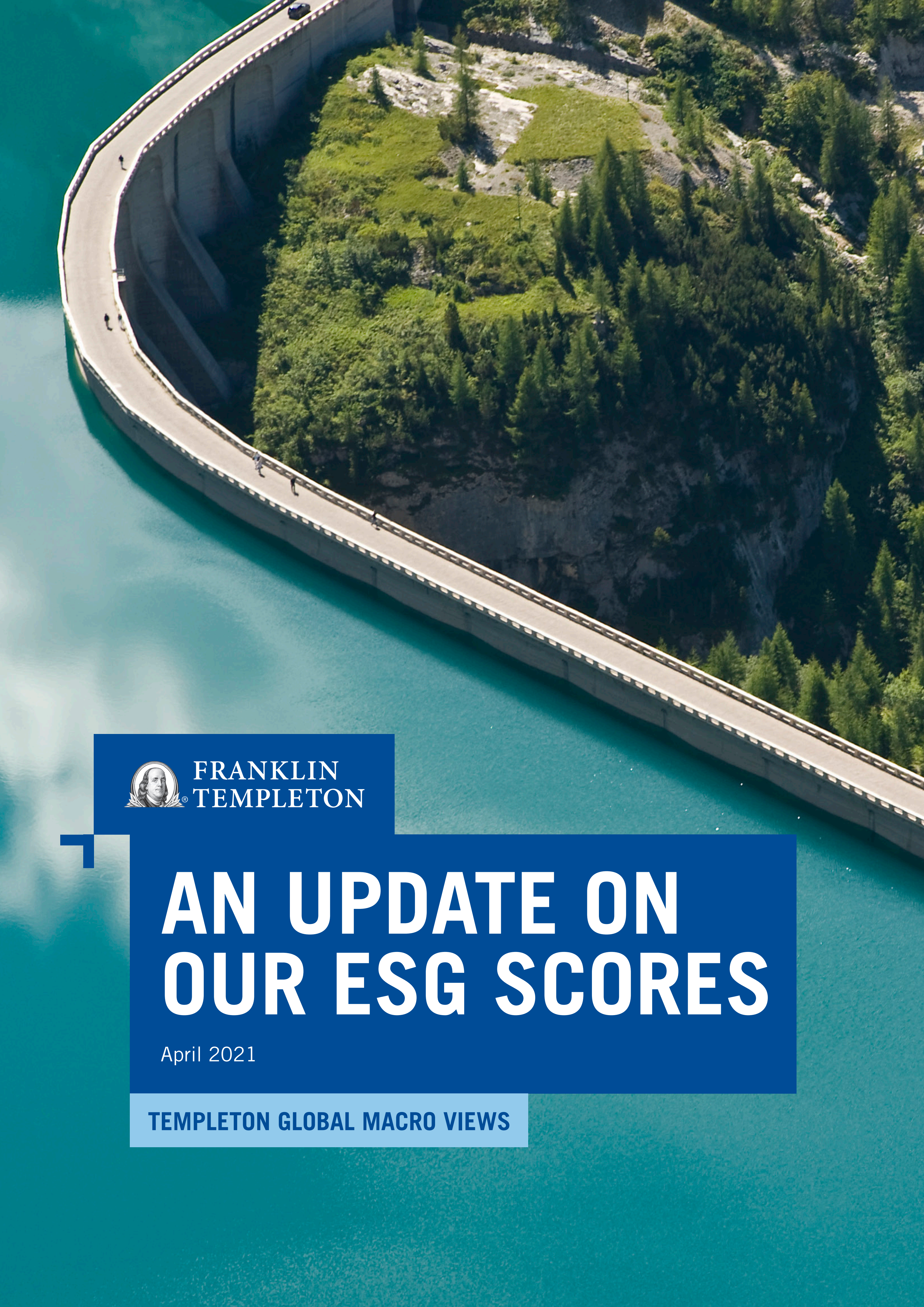


FRANKLIN TEMPLETON

AN UPDATE ON OUR ESG SCORES

April 2021

TEMPLETON GLOBAL MACRO VIEWS

In this issue

In February 2018, Templeton Global Macro (TGM) released its original paper on the topic of environmental, social and governance (ESG) factors in sovereign fixed income investing. The paper (Global Macro Shifts—issue 9 [GMS-9]) explored the team's novel approach to ESG investing, which does not merely measure current ESG levels as a screen, but instead focuses on projected changes in ESG scores that may reveal opportunities for investment as well as risks to avoid. TGM had been conducting similar research on the effects of governance and social factors on macroeconomic conditions for decades. However, the 2018 paper was the first time those insights were publicly codified into an ESG scoring system.

Since the publication of GMS-9 in early 2018, TGM has released updates of its ESG research and scores every six months. These recurring updates specifically contain current scores by country, as well as projected scores and a set of brief case studies. A recap of TGM's philosophy and scoring process is also included, along with a review of any refinements in our methodology.

In this April 2021 publication, we provide updated ESG scores for the 100 countries in our actively covered universe, as well as an additional 54 countries that we passively track through third-party indexes. The update also includes a section on the impact of the COVID-19 pandemic on ESG factors, as well as a series of case studies on Russia, Uzbekistan, China, South Africa and Colombia. Lastly, we take a look at how projected changes in ESG scores (momentum) may add value in a modern portfolio theory context.

A recap of TGM's ESG philosophy and process

1. **Integration:** ESG is most effective as an investment tool when fully integrated into the other components of research, including traditional economic analysis and in-person visits with policymakers, which help form our core macroeconomic views on a country. ESG factors are integrated into our analysis of economic issues such as growth and inflation.

2. **Forward-looking:** Focus is placed on forward-looking data points, rather than current ESG performance, which is strongly correlated with income levels. We believe momentum, or change in score, is the measure that truly matters for both investment performance and for where capital can be deployed to generate the most positive impact.

3. **Focus on the tails:** ESG is an important tool for identifying investment opportunities and for highlighting areas of risk. Within TGM, we are most interested in the projected "tails," which signal major ESG shifts in either direction.

4. **Time horizon:** To benefit from ESG analysis, investors must have a sufficiently long-time horizon. ESG factors guide a country's longer-term fundamentals, but the underlying trends can be obfuscated in the short term by cyclical or temporary conditions. Conviction in an analytical view and patience to see that view come to fruition are requisites to successful ESG investing.

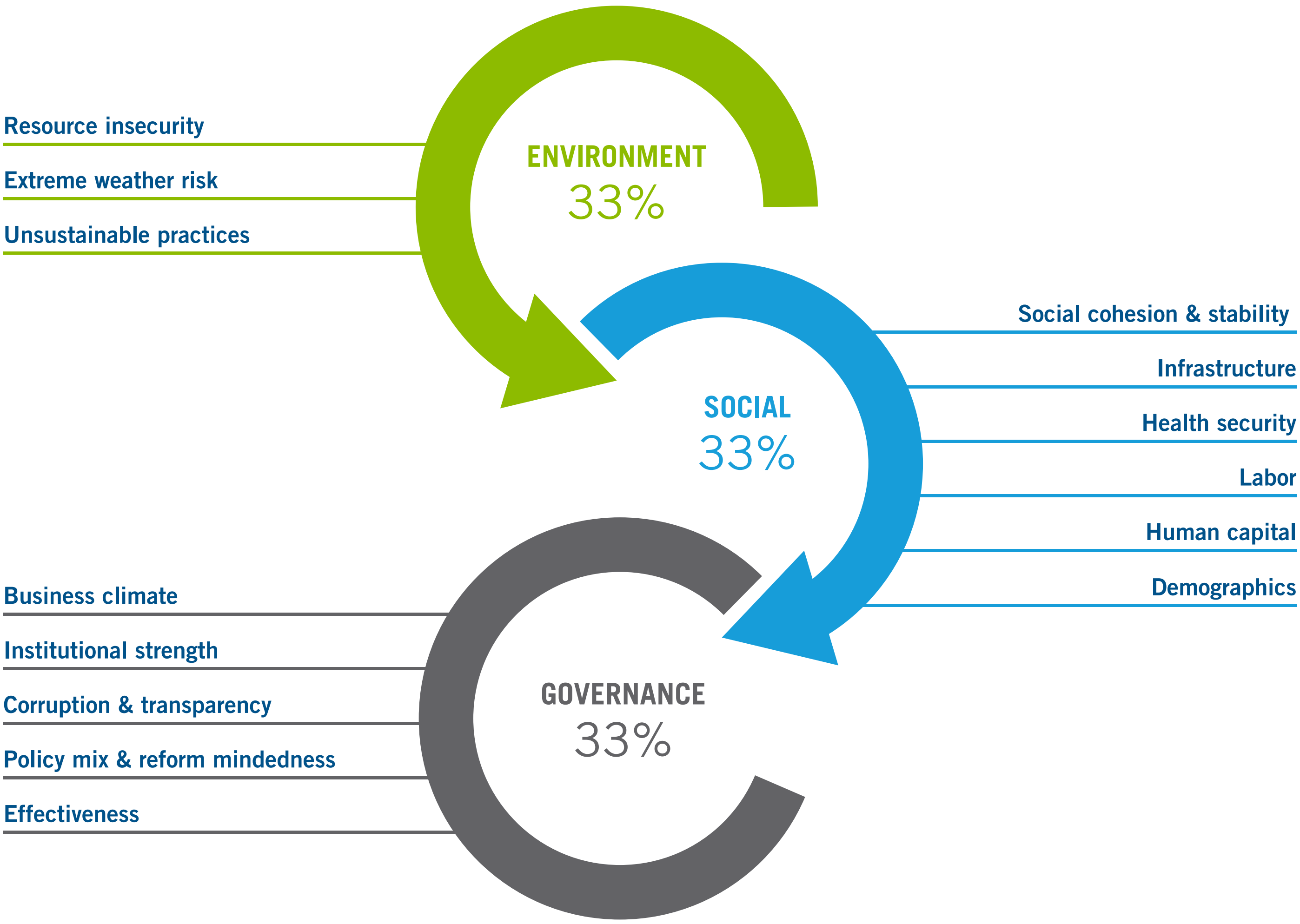
5. **Engagement:** Emphasis on a country's long-term fundamentals provides an effective base from which to open communications with policymakers interested in discussing best economic practices. This dialogue is important in our efforts to evaluate ESG factors, and for government officials interested in the perspectives of private markets.

TGM-ESG Index (ESGI) methodology

TGM-ESGI scores are an aggregate of 14 subcategories that we view as key defining characteristics of a country's macroeconomic conditions. In February 2020, we added a Health Security subcategory to the original set of 13 subcategories (which can be found in GMS-9 on page 4). These 14 subcategories (five governmental, six social and three environmental) cover a number of core areas of ESG criteria, ranging across topics such as government effectiveness, institutional strength, social cohesion, infrastructure quality, resource scarcity and environmental sustainability.

We score each country from 0 to 100 in each of these 14 subcategories, using a process that leverages the baseline rankings from a set of global indexes produced by leading research institutions in their fields. The 14 subcategory scores are then tallied into a total ESG score by grouping them into their respective environmental, social and governance categories, and equal weighting those three overarching categories (i.e., a 33% weighting for governance, 33% for social and 33% for environmental). [Note: the number of subcategories are subject to change without notice, but any changes will be shared in the next semi-annual publication of this report.]

We then use our internal proprietary research as a forward-looking overlay on those baseline current scores, to assess whether we expect countries to improve or deteriorate in each of the subcategories over the next two to three years. These conclusions form our projected ESG scores for each country—a key distinguishing feature of TGM's approach to ESG investing.



ESG in a post-pandemic world

In the previous Global Macro Views (October 2020), we highlighted how the outbreak of COVID-19 had impacted countries in divergent ways and had run through our ESG scores like a red line. As we highlighted then, deteriorating fiscal and monetary conditions have been one of the clearest symptoms of worsening governance, with deficits and global debt levels ballooning.[1] But we have also seen countries that are generally known for efficient governance during normal times, neglect basic government duties during the crisis. While we believe this will have societal and political repercussions in the near term (at least across developed markets), recent elections in many countries have actually played out largely in accordance with consensus expectations and without significant upsets. Furthermore, a median of 73% of citizens recently surveyed (Pew Research Center) across 14 developed countries said they approved of their government's handling of the pandemic.[2]

Nonetheless, there have been massive impacts to societies. Health capacities and health safety nets have been put to the ultimate test, with widely varying outcomes across the globe. Since the initial outbreak of COVID-19, governments around the world have had to walk a fine line between bringing the pandemic under control and not unduly infringing on the rights of their citizens. Many countries instituted mask mandates, lockdowns, curfews and/or restrictions on large group gatherings. According to Human Rights Watch, some 83 governments have not managed this process appropriately, using the pandemic as cover to violate basic rights like freedom of speech, freedom of the media and the right to peaceful assembly.[3] Moreover, 51 governments have used the pandemic as a justification to arbitrarily arrest citizens who protest government policies in dealing with the pandemic. Disunity and distrust are also on the rise according to the aforementioned survey of citizens in 14 developed countries.[4] On the whole, negative impacts on social cohesion can be seen in many countries across the world, which we expect to bear out in ESG scores in the period ahead.

On the environmental front, most regions saw steep declines in mobility and associated emissions in 2020, followed by gradual recoveries.[5] For example, COVID-19 reduced the amount of air traffic to levels that were last seen in 1999.[6] Global carbon dioxide emissions fell by 6.4%.[7] Unfortunately, these reductions appear temporary and not sustainable.

An interesting trend we are monitoring is the global ambition to emerge stronger economically from the pandemic through green and sustainable investing. For instance, the European Union's (EU's) massive recovery fund aims to spend more than a third on items supporting climate goals. In China, the government has spent US$28 billion since the start of the pandemic on clean energy stimulus[8] and, in its latest five-year plan for economic development, targets a reduction of emissions per unit of gross domestic product (GDP) by 18% in 2025.[9] The government is also looking to construct eight large-scale clean energy bases away from the coast in less populated provinces like Xinjiang, Inner Mongolia and Yunnan. Meanwhile, South Korea's Green Deal is aiming for the gradual phasing-out of coal and phasing-in of renewable energy investments. In Vietnam, the government has drafted a new national development plan that aims for over US$100 billion in investments, with an emphasis on new wind and solar power sources.

Globally, we are seeing massive investment in areas of sustainability. While economic imbalances have grown and societal tensions have built up over the last year, the elevation of green investments as a priority provides countries with an opportunity to not only improve their carbon footprint, but also to enhance their energy security. When done right, investments in infrastructure should have a positive impact on national business climates. Thus, when a post-pandemic return to growth gets underway, it can take place against a more sustainable backdrop.

Looking ahead, we are seeing signs of ESG improvement in specific countries, as well as ongoing and deepening ESG deterioration in others. In our previous TGM-ESGI update (October 2020), we cautioned that the ongoing damage from the pandemic had led us to provisionally shift our attention toward countries with already high ESG scores, given elevated risks and a dearth of countries showing improvement. Fortunately, conditions have notably improved in the spring of 2021 as the world begins to emerge from COVID-19. Correspondingly, ESG momentum (projected change) has returned to prominence in our value identification process.

Updated TGM-ESGI scores

Table 1 shows our updated TGM-ESGI current scores for the 100 countries we actively cover, sorted by highest to lowest total score, as of February 28, 2021. The table also shows the current scores broken down by their E, S and G components. For comparison, the table also shows the previous current scores at our last update six months ago (data as of August 2020), along with a column indicating the net change between the two periods. In Exhibit 1, we shift the focus to the future, charting our projected score changes by their E, S and G components, sorted from largest total decline to largest total increase. Countries without a material projected change are not included in the chart.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE SCORES BY COUNTRY (TGM-ESGI)

Table 1: TGM-ESGI scores: Current by E, S, and G factors
As of February 2021

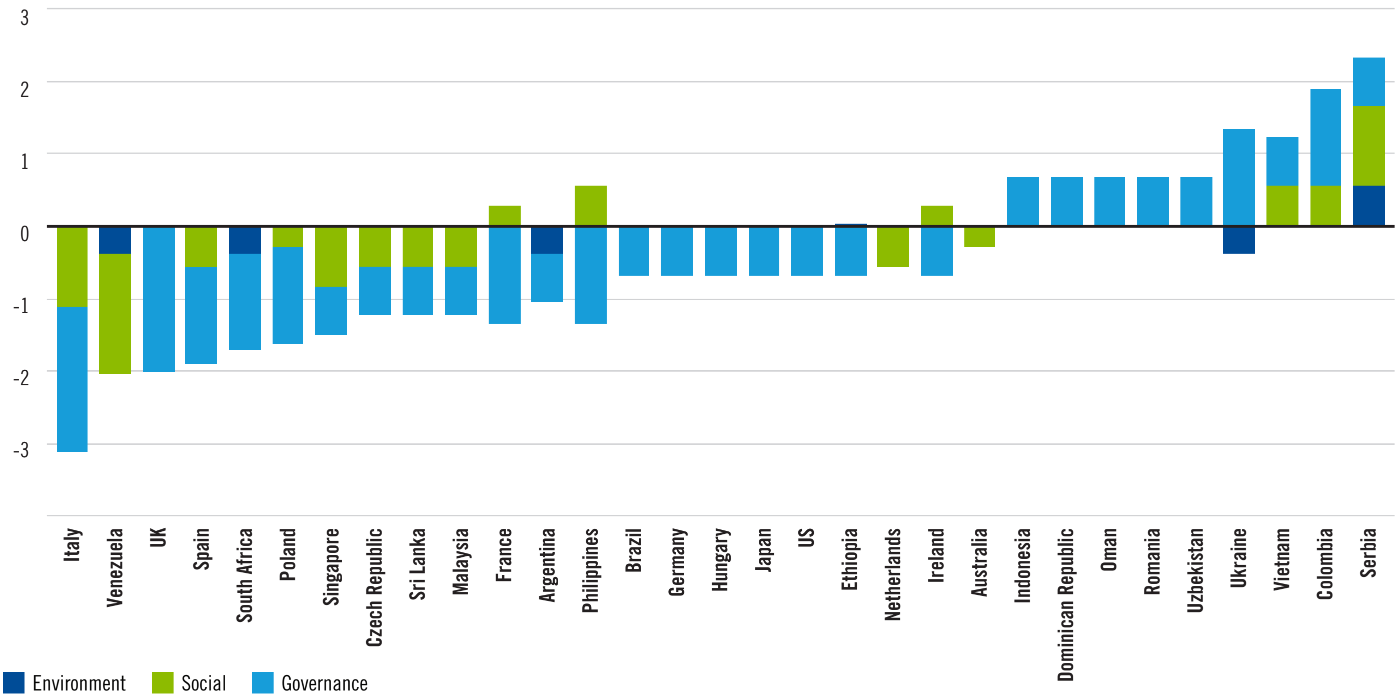
	Prior TGM-ESGI Score		Current TGM-ESGI Score	Current TGM-ESGI by category		
	August 2020	=>	February 2021	E	S	G
Switzerland	92		92	93	86	98
Denmark	92		92	94	82	100
Norway	91		91	94	78	100
Sweden	90		90	96	75	100
Austria	—		89	91	79	98
Finland	—		89	94	73	100
Iceland	—		89	97	73	96
Canada	89	–1.2	88	86	80	98
Germany	87	–1.9	85	83	75	98
New Zealand	87	–1.3	85	81	75	100
UK	84	–0.7	84	81	76	94
Australia	83		83	67	81	100
France	82	–0.4	82	92	63	90
Ireland	82	–0.1	82	80	73	92
Netherlands	82	–0.5	81	66	82	96
Estonia	—		81	85	66	92
Singapore	84	–2.6	81	64	78	100
Belgium	—		80	82	70	88
Czech Republic	79		79	82	74	80
Lithuania	78		78	82	66	86
Latvia	—		77	82	64	84
US	81	–5.0	76	61	76	92
Korea	74	+1.9	76	67	74	88
Japan	79	–3.4	76	56	82	90
Portugal	75	+0.4	76	80	61	86
Spain	75	–0.2	75	80	62	84
Hong Kong	—		75	50	75	100
Israel	72	–0.1	72	72	60	84
Taiwan	—		71	50	70	94
Hungary	71		71	82	62	68
Slovakia	73	–2.5	71	73	63	76
UAE	68	+1.7	70	46	76	88
Croatia	72	–2.8	69	77	61	70
Malaysia	69		69	60	68	78
Italy	66		66	75	57	66
Poland	65		65	66	61	70
Qatar	—		65	49	71	76
Uruguay	65	–1.0	64	66	52	74
Bulgaria	—		61	61	57	64
Romania	—		60	62	53	64
Chile	61	–1.1	60	44	54	80
Bahrain	—		59	41	65	70
Costa Rica	—		57	59	47	66
Thailand	58	–1.1	57	49	58	64
Serbia	57	–0.7	57	67	48	56
Kazakhstan	—		57	51	61	58
Seychelles	—		56	60	47	62
Oman	—		56	41	60	66
Greece	56	–0.6	56	56	48	64
Colombia	56	–0.4	55	68	42	56
Botswana	—		55	56	40	68
Belarus	—		54	62	58	42
Saudi Arabia	54	–1.1	53	48	48	62
China	55	–3.2	51	43	57	54
Rwanda	55	–3.9	51	42	46	66
Peru	54	–3.6	50	56	49	46
Argentina	49	–0.1	49	64	43	40
Mongolia	49	–0.2	49	42	56	48
Mexico	50	–1.9	48	50	49	46
Brazil	50	–1.7	48	68	35	42

	Prior TGM-ESGI Score		Current TGM-ESGI Score	Current TGM-ESGI by category		
	August 2020	=>	February 2021	E	S	G
Vietnam	48	–2.0	46	33	58	46
Turkey	48	–2.0	46	40	43	54
Jamaica	—		45	37	41	58
Russia	47	–1.7	45	57	41	38
Ecuador	40	+3.8	44	56	46	30
Bosnia and Herzegovina	—		43	48	40	42
Sri Lanka	43		43	43	40	46
South Africa	43		43	34	37	58
Ukraine	42		42	61	36	30
Morocco	42	+.03	42	37	36	54
Ghana	44	–2.7	42	36	39	50
Indonesia	41		41	31	43	50
Egypt	44	–4.3	40	47	38	36
Fiji	—		40	15	49	56
Senegal	38	+0.9	39	34	36	48
Kenya	42	–2.5	39	36	43	40
Dominican Republic	—		39	42	38	38
Philippines	39		39	31	44	42
India	39		39	30	37	50
Malawi	—		38	51	35	28

	Prior TGM-ESGI Score		Current TGM-ESGI Score	Current TGM-ESGI by category		
	August 2020	=>	February 2021	E	S	G
Uganda	39	–1.1	38	40	43	30
Gambia	—		38	37	43	34
Bolivia	—		37	59	35	16
Ivory Coast	39	–3.1	36	43	31	34
Tanzania	35	–0.2	35	41	38	26
Zambia	39	–4.9	34	49	24	30
Cambodia	33	+0.6	34	34	44	22
Kyrgyzstan	—		33	20	52	28
Ethiopia	33	+0.1	33	39	37	24
Uzbekistan	—		33	22	50	26
Mozambique	25	+5.6	30	48	23	20
Myanmar	30	–0.6	29	34	38	16
Lebanon	28	–0.3	28	28	33	22
Iran	28	–0.4	27	35	28	18
Tajikistan	—		26	29	33	16
Pakistan	—		26	22	28	26
Bangladesh	—		23	13	38	16
Angola	20	+1.9	22	29	28	8
Nigeria	25	–5.6	20	17	26	16
Venezuela	13	–1.5	11	20	14	0

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

Exhibit 1: TGM-ESGI scores: Projected changes by E, S, and G factors
As of February 2021



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

The universe of actively covered TGM-ESGI countries increased from 57 to 100

In 2021, we significantly increased the number of countries we actively cover from 57 to 100. We are also now scoring another 54 countries based solely on third-party indexes, bringing the total number of scored countries to 154. This expanded universe of scored countries enhances our ability to compare and contextualize various scores. The heat map in Table 1 offers a visual example of how the larger data offer a more detailed landscape that enables more meaningful observations. For example, out of the top-ranked countries, a quick scan reveals that Australia, the Netherlands, Singapore and Japan score highly on social and governance metrics but lag on environmental metrics. Similar types of observations can be seen in the middle third of the pack, where countries like Chile and Uruguay have relatively higher scores on governance than nearby ranking countries in the table, revealing that factors other than governance are pulling their total scores lower.

The heat map also provides a clear view of how current scores in our index have evolved since the previous update, and we can observe that a number of countries that have had longstanding negative projections are moving down the table. Examples of these are Germany, France, the Netherlands, Spain and Japan. These changes, spotlighted by the heat map, are what we are looking to project in our forward-looking ESG scores.

Those forward-looking projections have also evolved in our latest update, as we see several countries on the move, both in improving and deteriorating directions. We now have nine countries with a positive projected ESG delta, which is an increase from the seven positive projections in October 2020. From the list of countries that previously had positive projections, we saw Ecuador and Greece move back to neutral. Newly added countries such as Oman, Romania, Uzbekistan and the Dominican Republic were also added to the list of positive delta countries. The average positive delta was +1.1 for all actively covered countries, up from +0.7 in October 2020 and +0.9 in April 2020.

The number of countries with a negative delta declined from 30 in our previous update to 22, though the average negative delta for all actively covered countries remained unchanged at -1.2. China, Israel, Kenya, Nigeria, Uganda and Zambia moved from a previously negative projection to either a neutral or positive ESG delta. In some cases, these moves reflect positive changes. For instance, the outlook for Kenya's policy mix has stabilized and moved to neutral after it was previously deteriorating, now that its new International Monetary Fund (IMF) program is expected to serve as an anchor. In other cases, "improvements" are of a technical nature, such as China's previous negative projection on policy mix now becoming realized, causing the ESG delta to reset to neutral. Among the total set of actively covered countries, the average current score is 56.1, while the average projected score shows a slight deterioration to 55.9.

Methodology changes and expanded country universe

While indexes from major institutions like the World Bank or World Energy Council form the building blocks of the TGM-ESGI, the scoring methodology also relies on the opinions of the Templeton Global Macro research team. Scores are determined by combining our own research on policy and societal trends with a thorough understanding of the local situation in the countries we cover. The scope of the country universe had until now been limited to 70 (57 actively covered, 13 passively scored), which enabled greater focus on each of the covered countries but also was a bit narrow compared to the breadth of other ESG indexes.

We have now expanded our coverage to 154 countries, with 100 countries being actively covered by analysts and 54 being scored solely on industry indexes. For the 100 actively covered countries, our research team provides ongoing active input on both current and projected ESG scores. This country set includes the prior group of 70 scored countries as well as new additions that were previously not included, such as Bolivia, Iceland and Uzbekistan, among others. For the 54 passively scored countries, we use a "default to index" approach that takes third-party index data (i.e., World Bank, World Energy Council, etc.) and involves no additional active input from the research team. This enables us to include these countries for comparison and contextualization within the overall universe of TGM-ESGI scores. However, our team does not project scores for these countries. This set of 54 passively scored countries, which is subject to change, includes new names like Honduras, Madagascar and Papua New Guinea.[10]

In addition to the expanded universe of countries, we have adjusted the Human Capital Index, which forms one of the six social indexes and contributes approximately 6% to the total ESG score. Previously the underlying index was the World Economic Forum's (WEF's) Global Human Capital Index; however, that index has not been updated since 2017 and is being discontinued.

Thus, we have updated the Human Capital Index to a new composite index that consists of 80% of the World Bank Human Capital Index. The World Bank index is an index that is somewhat simpler than the WEF index as it incorporates survival, health and education metrics, while the WEF index was focused on education and deployment (literacy rate, employment gender gap, unemployment rate, etc.). In order to make the indexes align more closely, we have also incorporated the female labor force participation gap (5%) and total labor force participation rate (5%), both based on World Bank data, as well as a measure of economic complexity using Harvard's Atlas of Economic Complexity data. The correlation of the new index to the old index is approximately 0.9, which we deem sufficient for consistency purposes.

ESG and modern portfolio theory

There are many applications for ESG analysis in investment management, yet the preponderance of stylistic approaches continue to emphasize ESG as a screen, rather than an indicator of change or opportunity. ESG analysts that focus only on historical data are limited to a levels-based approach (screen). However, we believe investors that have the expertise to make qualified judgments on forward-looking ESG momentum have the opportunity to unlock even greater insight. Forward-looking ESG analysis can be combined with return analysis to model expected investment returns. As we demonstrate below, our findings indicate that integrating a forward-looking momentum approach into an investment process can enhance and optimize returns in a sovereign fixed income portfolio.

As we know, modern portfolio theory (MPT)[11] uses mean-variance analysis to construct an efficient frontier of portfolios that optimize the expected return per unit of risk. Harry Markowitz noted that "since the future is not known with certainty, it must be expected or anticipated returns which we discount." And due to forecasting difficulties, this has meant that investors have typically used historical data for projecting returns.

As mentioned at the outset of this paper, we have maintained an archive of TGM-ESGI scores that date back to 2018. Using these figures we can evaluate portfolios in an MPT context based on ESG levels (current scores) and ESG momentum (projected changes in scores that we saw at historical points in time). This enables us to reconstruct return streams and to measure quantitative statistics like volatility and correlation using different sets of ESG filters, such as:

- Positive ESG momentum: countries that our analysts projected at any given point in time to see improving ESG scores from that point onwards
- Negative ESG momentum: countries that our analysts projected at any given point in time to see deteriorating ESG scores from that point onwards
- ESG levels: high ESG scores or low ESG scores
- Positive momentum on individual E, S or G components

Table 2 shows annualized returns and quantitative statistics for the combinations of ESG-filtered portfolios listed above. These hypothetical portfolios have been constructed using a rules-based approach that aggregates sets of local-currency government bonds under specific exclusion rules.[12] The returns of these sets of bonds are applied to the country weights in the aforementioned ESG-filtered portfolios. Browsing through the resulting figures, a few observations stand out. Most notably, the portfolio with positive ESG momentum performs better than the negative ESG momentum portfolio as well as the entire ESG universe on nearly all metrics. The positive ESG portfolio has a higher annualized return (nearly three times as high as the negative momentum portfolio), but also has lower volatility than the negative momentum portfolio, resulting in a higher return/volatility ratio. It also has a lower maximum drawdown.

In the ESG levels portfolios, the High ESG Levels portfolio has higher volatility, which is an interesting and unexpected result, but it does have better performance, return/volatility ratios and drawdowns. Finally, the niche portfolios that focus only on E, S or G components do not exhibit appealing risk/return characteristics and show some of the highest drawdowns. Thus it is the positive ESG momentum portfolio and the High ESG Levels portfolio that are the strongest on a MPT basis.

Table 2: Quantitative statistics of TGM-ESGI filtered portfolios (Source: TGM-ESGI)
As of February 2021

Statistics for February 2018–December 2020	Annualized total return	Volatility	Return/ volatility ratio	Maximum drawdown
Positive ESG momentum	3.2%	5.3%	0.6	–11.7%
Negative ESG momentum	1.1%	5.4%	0.2	–12.5%
All countries in ESG universe	1.8%	5.0%	0.4	–13.3%
High ESG levels (>75)	2.6%	5.7%	0.4	–11.6%
Low ESG levels (<75)	1.5%	5.3%	0.3	–14.5%
Positive ESG momentum (environment)	0.6%	6.3%	0.1	–15.8%
Negative ESG momentum (environment)	0.8%	11.0%	0.1	–26.6%
Positive ESG momentum (governance)	2.0%	6.5%	0.3	–20.0%
Negative ESG momentum (governance)	1.2%	5.4%	0.2	–12.3%
Positive ESG momentum (social)	1.1%	4.8%	0.2	–12.6%
Negative ESG momentum (social)	0.1%	6.1%	0.1	–16.9%

Source: TGM. Indexes are unmanaged and one cannot directly invest in them. They do not include fees, expenses or sales charges. **Past performance is not an indicator or a guarantee of future performance.**

Finding the optimal sovereign fixed income ESG portfolio

Next, we used the archives of 2018–2020 returns and ESG scores to simulate 50,000 combinations of allocations to the ESG-filtered portfolios from Table 2 to identify the "optimal ESG portfolio" in an efficient frontier context. We are aiming to find ESG portfolios with: 1) the highest Sharpe ratio; or 2) the lowest overall volatility, which do not necessarily have to be the same portfolio. Subsequently, we ran another optimization that incorporates an equity component (the MSCI World Index) in order to better understand what the optimal combination would be in a highly simplified multi-asset context. The results are illustrated in Exhibits 2, 3 and 4.

The results of the simulation revealed that an ESG-only *minimum volatility* portfolio would be a well-balanced portfolio that is invested in a mix of overall positive momentum, high ESG scores, as well as specific positive governance and social momentum countries (Exhibit 2). It is again interesting to note that the negative momentum portfolio shows up here, but we consider this to be an anomaly likely explained by other factors and return drivers it is exposed to. The *ESG-only maximum Sharpe* portfolio has nearly three quarters of its exposure to positive momentum ESG countries (Exhibit 3). The *multi-asset maximum Sharpe portfolio* combines 12% of equity exposure with a mix that is approximately 47% ESG momentum, 17% high ESG scores and about 24% a mix of the other ESG portfolios (Exhibit 4 next page).

Exhibit 5 (on the next page) shows the efficient frontier of the simulated multi-asset portfolio based on 2018–2020 returns. Table 3 shows the asset mixes with the highest returns across a subset of volatility thresholds in the range of 5% to 9%. Most notably, though it is not exactly a linear trend, at low levels of volatility the ESG component is a mix between high scoring countries and positive ESG momentum countries, whereas at higher volatility levels, the positive momentum portfolios play an increasingly more significant role. This is a result that makes intuitive sense and would indicate that making a well-reasoned decision about whether to incorporate a momentum or a levels-based approach into an investment process may depend on specific risk/return targets and constraints.

Overall, we find the results of the above simulations highly informative. There continues to be ongoing debate among investors over how to best incorporate ESG analysis into portfolio management.

Exhibit 2: Minimum volatility—fixed income portfolio

Return	Volatility	Sharpe
1.54%	4.54%	0.34

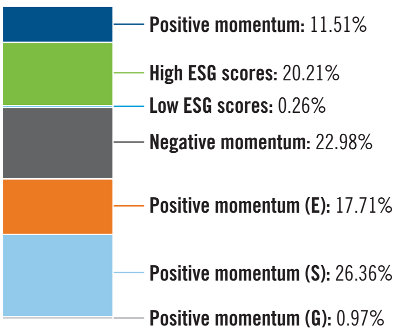


Exhibit 3: Maximum sharpe ratio—fixed income portfolio

Return	Volatility	Sharpe
2.72%	4.96%	0.55

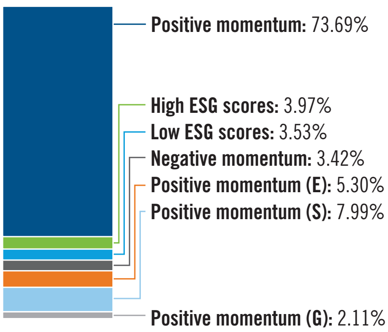
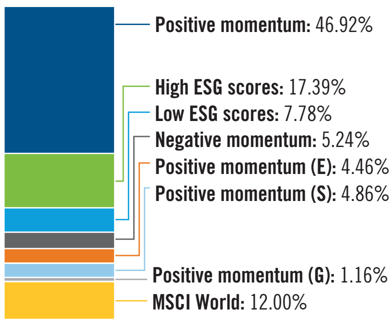


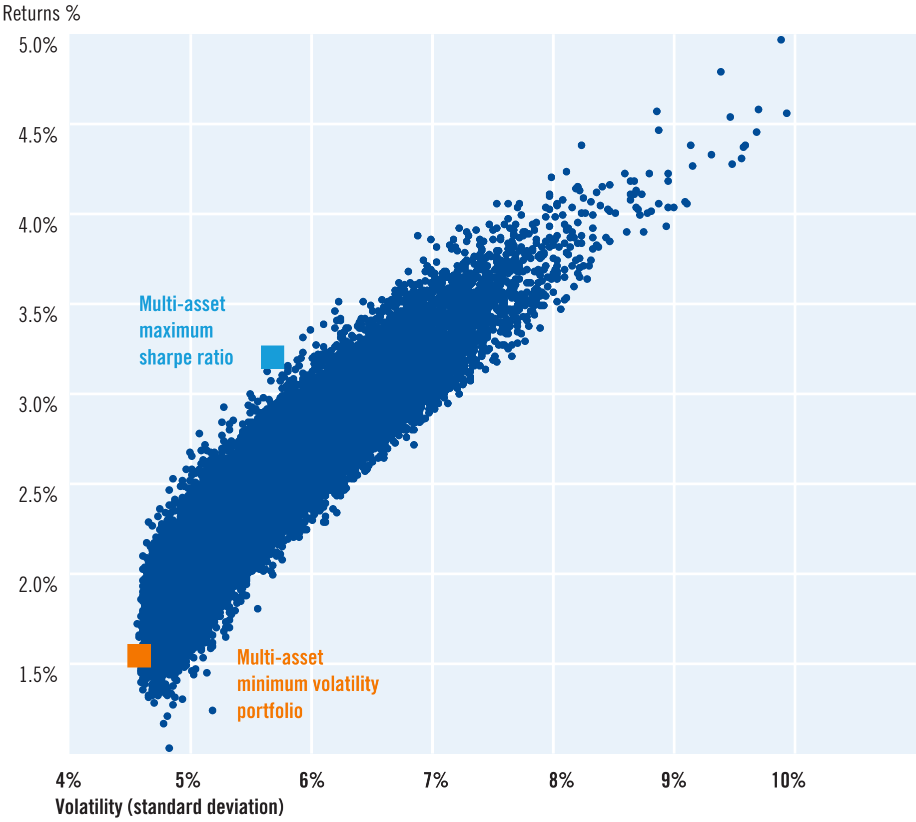
Exhibit 4: Maximum sharpe ratio for multi-asset portfolio

Return	Volatility	Sharpe
3.20%	5.66%	0.57



Source: TGM. **Past performance is not an indicator or a guarantee of future performance.**

Exhibit 5: Efficient frontier of ESG multi-asset portfolios
2018–2020 returns



Source: TGM.

Table 3: Optimal allocations by ranges of volatility

Volatility range	Return	Volatility	Return / volatility	ESG: positive momentum	ESG: high scores	ESG: other	MSCI World
5.0%–6.0% volatility	3.4%	6.0%	0.5	27.8%	29.5%	25.5%	17.2%
6.0%–6.5% volatility	3.6%	6.4%	0.6	28.0%	29.8%	23.1%	19.1%
6.5%–7.0% volatility	3.9%	6.9%	0.6	28.3%	29.2%	17.9%	24.6%
7.0–7.5% volatility	4.0%	7.3%	0.5	33.5%	18.6%	21.6%	26.2%
7.5%–8.0% volatility	4.2%	7.5%	0.5	30.0%	25.8%	14.4%	29.1%
8.0%–8.5% volatility	4.3%	8.4%	0.5	18.4%	18.6%	28.8%	34.2%
8.5%–9.0% volatility	4.5%	8.8%	0.5	40.9%	0.2%	22.6%	36.4%

Sources: TGM, MSCI. Indexes are unmanaged and one cannot directly invest in them. They do not include fees, expenses or sales charges. **Past performance is not an indicator or a guarantee of future performance.**

Levels-based approaches (i.e., a high ESG score screen) have had the predominant focus in recent years for a number of reasons, including widely available ESG data, the relative ease of applying a screening process, and a general view that filtering quality is the primary utility of ESG analysis. However, we pose that an ESG momentum approach has the potential to yield superior risk-adjusted outcomes. Under the momentum approach, analysts can identify countries to pursue or avoid based on projected changes, which more closely aligns with the role and added value of active investment management.

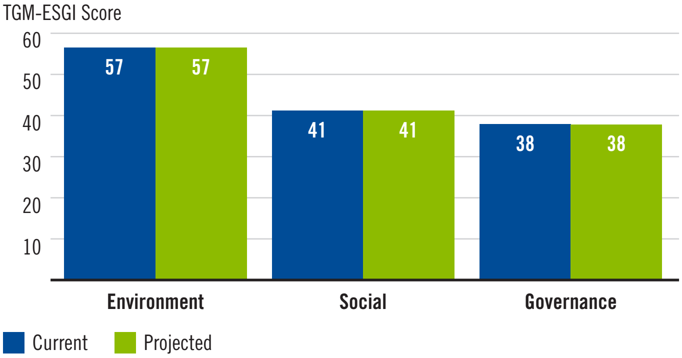
While the ESG momentum approach has delivered the best results in terms of total return and risk/return ratios over the last three years, both the momentum approach and the screen approach have their merits in portfolio optimization. For multi-asset portfolios with a volatility target of around 7.5%, our research indicates that historical total return was optimized in a portfolio that invested 33% in ESG momentum sovereign fixed income, 26% in equities, 22% in individual ESG components and 19% in High ESG levels sovereign fixed income. **[Past performance is not an indicator or a guarantee of future performance.]**

Case studies

Russia: Corruption and pervasive social issues remain a concern

RUSSIA

Exhibit 6: Current and projected conditions (TGM-ESGI)
As of February 2021



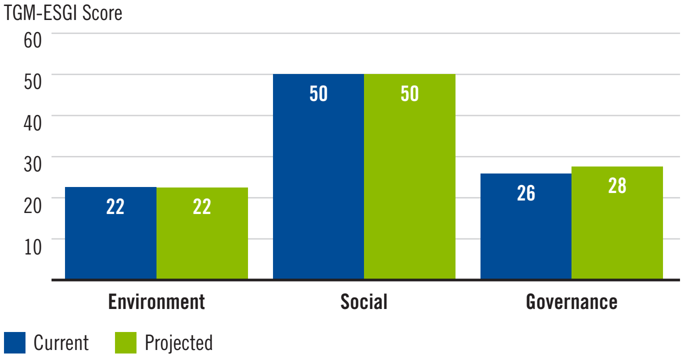
Source: TGM-ESGI. Our medium-term projections are for the next three years.

- The arrest of opposition politician Alexei Navalny and the treatment of protesters in January are the most recent examples of Russia's limited and contracting political sphere, characterized by personalized networks and significant corruption. This is unlikely to change in the coming years due to a lack of defection by elites or interest in reform at the top.
- The National Projects, which will be led by Prime Minister Mikhail Mishustin, offer an opportunity for better quality infrastructure and increased growth in the next couple of years. However, Russia's economic growth will be constrained by negative demographic trends and the state's outsized role in the economy.
- Despite the Russian economy's resilience during the COVID crisis, social issues related to economic hardship and inequality remain pervasive and important to public perception of regime efficacy.
- The Norilsk Nickel 150,000 barrel diesel spill that occurred last year in the Arctic and the ongoing investigation into the cause of sea life death in Kamchatka highlight Russia's continued lack of sufficient environmental regulations, monitoring systems and management. These crises, in addition to high energy intensity and problems with waste management, paint a bleak picture for a country that will be increasingly impacted by climate change.

Uzbekistan: Critical structural reforms are underway and slated to continue in upcoming years

UZBEKISTAN

Exhibit 7: Current and projected conditions (TGM-ESGI)
As of February 2021



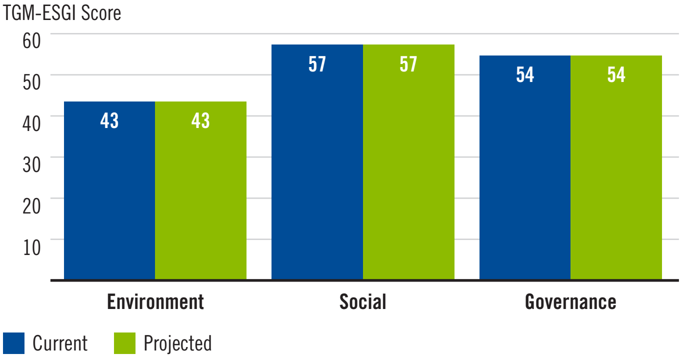
Source: TGM-ESGI. Our medium-term projections are for the next three years.

- Following two and a half decades of isolation under late President Islam Karimov, Uzbekistan has embarked on an ambitious set of reforms to move the country toward an open market economy and to pursue greater regional integration. Uzbekistan's opening coincides with a demographic boom that presents both challenges and opportunities for the country.
- Since 2017, Uzbekistan has opened its borders, liberalized some prices, adopted a floating currency, liberalized the banking sector, moved to address widespread labor abuses in its cotton industry and settled a number of border delineation disputes with neighboring countries. As the centrally located and most populous state in Central Asia, we believe Uzbekistan will play a key role in regional integration projects whether they are proposed by Moscow, Beijing or Washington.
- Looking ahead, Uzbekistan is expected to continue working on its five-year program to modernize the energy industry, to privatize a number of state entities and to further diversify its commodity dependent economy. The government should also see progress with a number of infrastructure projects. While the reform pace has been impressive, Uzbekistan has a long road ahead of it.
- *Other ESG topics: Rights to water resources for its people and its large agricultural sector will continue to play a significant role in Uzbekistan's relations with its neighbors. Despite reform progress, corruption remains rampant, and the country's human rights record remains far from perfect.*

China: Power concentration is likely to have pros and cons

CHINA

Exhibit 8: Current and projected conditions (TGM-ESGI)
As of February 2021



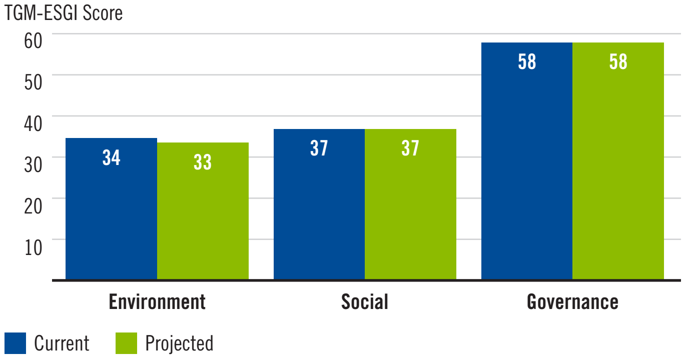
Source: TGM-ESGI. Our medium-term projections are for the next three years.

- China's economy is heavily managed. Government policy is careful but is not sufficiently addressing structural imbalances such as overinvestment, a low share of consumption in GDP and over-indebtedness.
- President Xi Jinping has further consolidated power. The Chinese government is quite effective due to a combination of authoritarianism and high-quality leadership, but power concentration is likely to have both pros and cons in the long run. Nonetheless, we currently see no signs of meaningful social unrest across the country, partly aided by the fact that the government is becoming more sophisticated at monitoring its citizens.
- China's demographics are disadvantageous. It is estimated that 350 million Chinese will be over the age of 65 by 2050.[13] The working age population is expected to decline, and the dependence ratio should increase. On the positive side, this reduces the pressure for job creation.
- China recently announced that it is aiming to see CO_2 emissions peak in 2030 and carbon neutrality achieved before 2060. In March 2021, the latest "five-year plan" was announced, formally specifying climate targets for the first time. China accounted for 29% of global energy-related carbon emissions, with fossil fuels forming approximately 58% of its energy mix.[14] It was also one of the few countries to see emissions grow in 2020 as it recovered from the pandemic very quickly.
- A new carbon trading market has been launched, but it currently applies only to the power sector. In theory it should force inefficient plants to buy pollution permits from more efficient ones, creating incentives to cut emissions. But an overallocation of permits means carbon prices may be too low to make a difference.

South Africa: Fiscal consolidation will be needed to address surging debt levels

SOUTH AFRICA

Exhibit 9: Current and projected conditions (TGM-ESGI)
As of February 2021



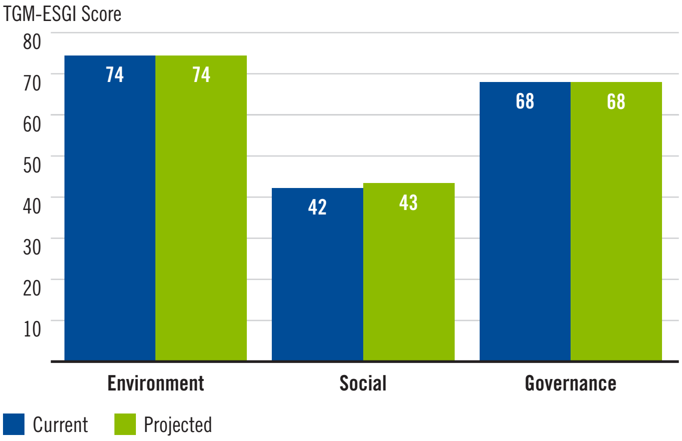
Source: TGM-ESGI. Our medium-term projections are for the next three years.

- South Africa's fiscal position has deteriorated in recent years, as deficits have remained wide by historical standards and growth has underperformed (averaging less than 1% since 2014). With public debt now above 80% of GDP in the wake of a weak 2020 (up from 63.3% of GDP in FY 2019/20), there is a pressing need for near-term fiscal consolidation.
- The new 2021 budget lays out a decently prudent path forward, calling for caps to recurrent expenditures—particularly public sector wages—and committing to using recent upside revenue surprises to pay down existing debt rather than to finance new spending.
- However, there remains significant implementation risk for this plan, given widespread pushback to wage cuts from large public sector unions, many of which were critical in helping elect the current president. Fractures within the leadership of the ruling ANC (African National Congress) party also complicate projected policy effectiveness.
- In addition, long-term challenges are not adequately addressed by the recent budget. For years, structural reforms to the state's ailing energy infrastructure have been slow to come, and ultimately lacking when they do appear. As the older power plants of Eskom (South Africa's public electric utility) continue to age, the economy will likely face continued load shedding and increasing constraints on power supply.
- The economy is dogged by severe economic inequality coupled with poor educational standards, which yields a low human capital score for the country. This, in turn, drives a continued need for high levels of social spending by the government.
- Corruption may stand to improve somewhat as the country investigates the alleged malfeasance of the prior administration of Jacob Zuma, and enacts measures to prevent such acts going forward.

Colombia: Spending has been targeted effectively, but fiscal adjustments will be needed

COLOMBIA

Exhibit 10: Current and projected conditions (TGM-ESGI)
As of August 2020



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

- Colombia responded to the COVID recession with a prudently sized fiscal package (of around 4.1% of GDP). However, given a sizable GDP decline in 2020 (-6.8%), gross debt rose to just under 65% of GDP in 2020 from just above 50% of GDP in 2019. Despite the relatively modest fiscal package, the economic recovery accelerated toward the end of 2020 and in early 2021.
- The government has announced a new fiscal reform effort this year to reduce the primary deficit by at least 1.5 percentage points of GDP after similar successful efforts in 2019 and 2016. This year's reform will test the government's ability to use its sizable coalition to achieve medium-term fiscal consolidation.
- Meaningful protests in late 2019 demanded an improvement in the quality of social services. Improving those will necessitate even bigger fiscal adjustments.
- The country's large informal sector is a source of risk from the pandemic.
- A large infrastructure program was effectively paused by the lockdowns, and the government is poised to restart it in short order to boost domestic demand and long-run productivity.

Templeton Global Macro Views is a complementary publication that will update and/or amplify the periodic research-based briefing on global economies called Global Macro Shifts. Both feature the analysis and views of Dr. Michael Hasenstab and senior members of Templeton 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

Primary contributors to this issue

Michael Hasenstab, Ph.D.
Executive Vice President,
Portfolio Manager,
Chief Investment Officer

Templeton Global Macro

Calvin Ho, Ph.D.
Senior Vice President,
Portfolio Manager,
Director of Research

Templeton Global Macro

Hyung C. Shin, Ph.D.
Vice President,
Deputy Director of
Research

Templeton Global Macro

Diego Valderrama, Ph.D.
Vice President, Senior Global
Macro & Research Analyst

Templeton Global Macro

Attila Korpos, Ph.D.
Senior Global Macro &
Research Analyst

Templeton Global Macro

Jens Waechter, Ph.D.
Senior Global Macro &
Research Analyst

Templeton Global Macro

Jaap Willems
Senior Quantitative
Research Analyst

Templeton Global Macro

Sabrina Beaver
Research Associate

Templeton Global Macro

Selam Nicola
Research Associate

Templeton Global Macro

Owen Solis
Research Associate

Templeton Global Macro

Endnotes

1. According to the Institute of International Finance, debt in developed markets reached 432% of gross domestic product (GDP) during the later parts of 2020. Sources: Institute of International Finance, Global Debt Monitor, *Bloomberg*, "World's US$281 Trillion Debt Pile Is Set to Rise Again in 2021," February 17, 2021.
2. Source: Pew Research Center, August 27, 2020.
3. Source: *Human Rights Watch*, "Covid-19 Triggers Wave of Free Speech Abuse," February 11, 2021.
4. Source: Pew Research Center, August 27, 2020.
5. Source: Google Community Mobility Report, March 29, 2021.
6. Source: Cirium, December 29, 2020.
7. Source: *Nature*, "COVID curbed carbon emissions in 2020 — but not by much," January 15, 2021.
8. Source: Energy Policy Tracker, March 31, 2021.
9. Source: CarbonBrief, March 12, 2021.
10. In certain cases, data gaps exist, and one or more of the 14 TGM-ESGI indicators may not be populated for these countries. As long as we are able to incorporate at least one indicator for E, S and G alike, a country will be included. The list of 54 passively scored countries is subject to change.
11. Source: Markowitz, H. 1952. *Portfolio Selection*, The Journal of Finance, Vol. 7, No. 1. pp. 77-91.
12. Bonds selected for the performance measurement sets were filtered by duration, excluding anything with a duration of less than one year or more than ten years. We also filtered by amount outstanding (minimum $100 million) and bond type, focusing only on bullet bonds and excluding inflation-linked, zero coupon and sukuk bonds. We included only local currency bonds with the exception being specific countries where local currency bonds were not available or could not be modeled, such as Angola, Saudi Arabia, Ukraine, Lebanon, Senegal, Ethiopia, Rwanda, Mozambique, Ivory Coast, Morocco, Mongolia and Venezuela.
13. Source: *China Daily*, "One in four Chinese 'aged above 65 by 2050'," May 20, 2010.
14. Source: US Energy Information Administration, China Analysis, September 30, 2020.

Notes

Notes

IMPORTANT LEGAL INFORMATION

This material is intended to be of general interest only and should not be construed as individual investment advice or a recommendation or solicitation to buy, sell or hold any security or to adopt any investment strategy. It does not constitute legal or tax advice.

The views expressed are those of the investment manager and the comments, opinions and analyses are rendered as at publication date and may change without notice. The information provided in this material is not intended as a complete analysis of every material fact regarding any country, region or market. **All investments involve risks, including possible loss of principal.**

Data from third party sources may have been used in the preparation of this material and Franklin Templeton ("FT") has not independently verified, validated or audited such data. FT accepts no liability whatsoever for any loss arising from use of this information and reliance upon the comments opinions and analyses in the material is at the sole discretion of the user.

Products, services and information may not be available in all jurisdictions and are offered outside the U.S. by other FT affiliates and/or their distributors as local laws and regulation permits. Please consult your own financial professional or Franklin Templeton institutional contact for further information on availability of products and services in your jurisdiction.

Issued in the U.S. by Franklin Templeton Distributors, Inc., One Franklin Parkway, San Mateo, California 94403-1906, (800) DIAL BEN/342-5236, franklintempleton.com—Franklin Templeton Distributors, Inc. is the principal distributor of Franklin Templeton U.S. registered products, which are not FDIC insured; may lose value; and are not bank guaranteed and are available only in jurisdictions where an offer or solicitation of such products is permitted under applicable laws and regulation.

Australia: Issued by Franklin Templeton Investments Australia Limited (ABN 87 006 972 247) (Australian Financial Services License Holder No. 225328), Level 19, 101 Collins Street, Melbourne, Victoria, 3000 / **Austria/Germany:** Issued by Franklin Templeton International Services S.à r.l., Niederlassung Deutschland, Frankfurt, Mainzer Landstr. 16, 60325 Frankfurt/Main, Tel 08 00/0 73 80 01 (Germany), 08 00/29 59 11 (Austria), Fax +49(0)69/2 72 23-120, info@franklintempleton.de, info@franklintempleton.at / **Canada:** Issued by Franklin Templeton Investments Corp., 200 King Street West, Suite 1500 Toronto, ON, M5H3T4, Fax (416) 364-1163, (800) 387-0830, www.franklintempleton.ca / **Netherlands:** Franklin Templeton International Services S.à r.l., Dutch Branch, World Trade Center Amsterdam, H-Toren, 5e verdieping, Zuidplein 36, 1077 XV Amsterdam, Netherlands. Tel +31 (0) 20 575 2890 / **United Arab Emirates:** Issued by Franklin Templeton Investments (ME) Limited, authorized and regulated by the Dubai Financial Services Authority. Dubai office: Franklin Templeton, The Gate, East Wing, Level 2, Dubai International Financial Centre, P.O. Box 506613, Dubai, U.A.E., Tel +9714-4284100, Fax +9714-4284140 / **France:** Issued by Franklin Templeton International Services S.à r.l., French branch., 20 rue de la Paix, 75002 Paris France / **Hong Kong:** Issued by Franklin Templeton Investments (Asia) Limited, 17/F, Chater House, 8 Connaught Road Central, Hong Kong / **Italy:** Issued by Franklin Templeton International Services S.à.r.l.—Italian Branch, Corso Italia, 1—Milan, 20122, Italy / **Japan:** Issued by Franklin Templeton Investments Japan Limited / **Korea:** Issued by Franklin Templeton Investment Trust Management Co., Ltd., 3rd fl., CCMM Building, 12 Youido-Dong, Youngdungpo-Gu, Seoul, Korea 150-968 / **Luxembourg/Benelux:** Issued by Franklin Templeton International Services S.à r.l.—Supervised by the Commission de Surveillance du Secteur Financier–8A, rue Albert Borschette, L-1246 Luxembourg, Tel +352-46 66 67-1, Fax +352-46 66 76 / **Malaysia:** Issued by Franklin Templeton Asset Management (Malaysia) Sdn. Bhd. & Franklin Templeton GSC Asset Management Sdn. Bhd / **Poland:** Issued by Templeton Asset Management (Poland) TFI S.A.; Rondo ONZ 1; 00-124 Warsaw / **Romania:** Franklin Templeton International Services S.À R.L. Luxembourg, Bucharest Branch, at 78-80 Buzesti Str, Premium Point, 8th Floor, Bucharest 1, 011017, Romania. Registered with Romania Financial Supervisory Authority under no. PJM07.1AFIASMDLUX0037/10 March 2016 and authorized and regulated in Luxembourg by Commission de Surveillance du Secture Financiere. Telephone: + 40 21 200 9600 / **Singapore:** Issued by Templeton Asset Management Ltd. Registration No. (UEN) 199205211E. 7 Temasek Boulevard, #38-03 Suntec Tower One, 038987, Singapore / **Spain:** Issued by Franklin Templeton International Services S.à r.l.—Spanish Branch, Professional of the Financial Sector under the Supervision of CNMV, José Ortega y Gasset 29, Madrid, Spain. Tel +34 91 426 3600, Fax +34 91 577 1857 / **South Africa:** Issued by Franklin Templeton Investments SA (PTY) Ltd which is an authorised Financial Services Provider. Tel +27 (21) 831 7400, Fax +27 (21) 831 7422 / **Switzerland:** Issued by Franklin Templeton Switzerland Ltd, Stockerstrasse 38, CH-8002 Zurich / **UK:** Issued by Franklin Templeton Investment Management Limited (FTIML), registered office: Cannon Place, 78 Cannon Street, London EC4N 6HL, Tel +44 (0)20 7073 8500. Authorized and regulated in the United Kingdom by the Financial Conduct Authority / **Nordic regions:** Issued by Franklin Templeton International Services S.à r.l., Contact details: Franklin Templeton International Services S.à r.l., Swedish Branch, filial, Nybrokajen 5, SE-111 48, Stockholm, Sweden. Tel +46 (0)8 545 012 30, nordicinfo@franklintempleton.com, authorised in the Luxembourg by the Commission de Surveillance du Secteur Financier to conduct certain financial activities in Denmark, in Sweden, in Norway, in Iceland and in Finland. Franklin Templeton International Services S.à r.l., Swedish Branch, filial conducts activities under supervision of Finansinspektionen in Sweden / **Offshore Americas**: In the U.S., this publication is made available only to financial intermediaries by Templeton/Franklin Investment Services, 100 Fountain Parkway, St. Petersburg, Florida 33716. Tel (800) 239-3894 (USA Toll-Free), (877) 389-0076 (Canada Toll-Free), and Fax (727) 299-8736. Investments are not FDIC insured; may lose value; and are not bank guaranteed. Distribution outside the U.S. may be made by Templeton Global Advisors Limited or other sub-distributors, intermediaries, dealers or professional investors that have been engaged by Templeton Global Advisors Limited to distribute shares of Franklin Templeton funds in certain jurisdictions. This is not an offer to sell or a solicitation of an offer to purchase securities in any jurisdiction where it would be illegal to do so.

Please visit www.franklinresources.com to be directed to your local Franklin Templeton website.

CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute.

FRANKLIN TEMPLETON