Taking one step at a time: moving our sovereign bond ESG research forward

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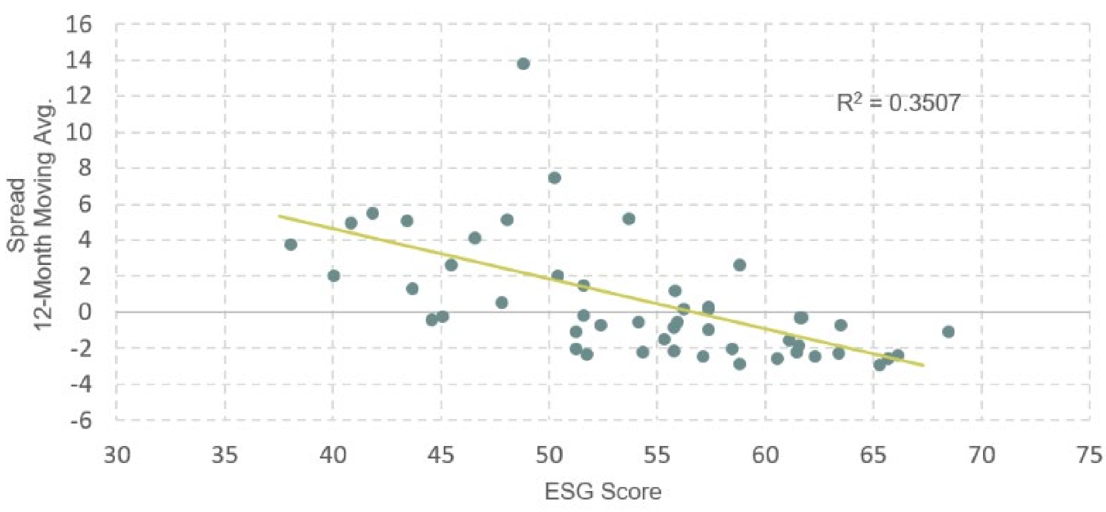
Environmental, Social, and Governance (ESG) factors have increasingly become a part of investment research efforts, whether the focus is equities, corporate bonds or sovereign bonds. Investor interest continues to grow as well. ESG's impact on investments is gaining traction. The information void continues to be filled and investment managers have increased efforts to develop research that integrates these factors into their investment processes. Rating agencies are increasingly focused on such factors, particularly the impact of governance on sustainable growth. The International Monetary Fund (IMF) has indicated that governance "is key to economic success." We continue to advance our efforts as well.

Step Back

We introduced our systematic approach to incorporating ESG factors into the sovereign bond research process in our first related blog, ESG: Seeds Are Sprouting. In that blog we noted that we applied third party metrics. Those metrics included a number of ESG variables. Individual scores for each component were generated, and then combined to produce an overall ESG score. A high ESG score revealed a country that ranks highly across several factors; those factors included, but were not limited to, a country's carbon intensity (E), income equality (S), and control of corruption (G). It is certainly instructive to have a single score for each country but can that score tell us anything meaningful about the country - and importantly - generate investable information for investors?

Chart 1: Interest rate spread and composite ESG score



Source: Brandywine Global, Bloomberg and Macrobond, as at 31 January 2019

We've done this in **Chart 1** above by taking our ESG score and determining if it "explains" a country's interest rate spread relative to the 10-year US Treasury note. The score produces the expected cross sectional results. The conclusion is simple: the higher a country's ESG score, the more compressed its interest rate spread. The interest cost on the debt is lower for the higher-scoring countries. For low-scoring countries the signal is higher debt cost, and could serve as an early warning of a credit rating agency credit downgrade.

Another insight can be gleaned from this scatter plot: given a specific ESG score, a country's interest-rate spread may be "high" or "low" relative to the model-specified relationship, also known as the fitted line. For example - and this suggests the investment opportunity - a country whose interest-rate spread is trading well above that specified by the model. There is the potential for a mean reversion opportunity. A country with a yield spread "above" what its ESG score might suggest could be expected to compress. However, this simple equation isn't sufficient to draw this conclusion. The investment case would have to be bolstered and validated by in-depth country and business cycle analyses. But, the ESG score helped identify investment potential. Now let us take the step forward.

Step Forward

The step forward needs to incorporate ESG directly into the research evaluation process. We took a page from HSBC's Fixed Income Research Group, which created its own ESG model and more importantly, introduced an ESG factor into its Sovereign Credit Risk Score. We analysed their model with the thought of making this research a part of our overall ESG efforts. **Table 1** below depicts our utilisation of the HSBC framework and reflects emerging market (EM) countries that are a part of our investment opportunity set.

Table 1: Selected EM country credit scoring model

Rankings | Lowest Rank = Least Risky | As of 2/19/2019

Countries	Real GDP Growth	Inflation	CA Balance, % of GDP	Fiscal Balance, % of GDP	External Debt, % of GDP	Import Cover Ratio	Credit Growth: Non-Financial Corporation	Government Effectiveness	Composite Score	Strategic Score	Composite Score (using Strategic Score)
CZK	10	8	6	4	15	5	7	3	58	1	56
ZAR	15	13	14	13	9	8	8	8	88	8	88
BRL	14	11	9	15	2	1	1	14	67	13	66
KRW	8	3	2	3	4	7	5	2	34	4	36
CLP	9	6	13	8	13	10	2	4	65	2	63
HUF	5	9	7	14	14	15	9	15	88	5	78
MYR	6	1	4	10	12	11	10	5	59	6	60
CNY	2	5	5	1	1	2	13	1	30	11	40
INR	1	7	12	12	3	6	12	10	63	14	67
MXN	11	12	11	9	7	13	14	13	90	9	86
PLN	3	4	10	5	11	12	4	6	55	3	52
THB	7	2	3	11	6	4	6	7	46	7	46
IDR	4	10	15	6	8	9	11	12	75	15	78
RUB	12	14	1	2	5	3	3	9	49	12	52
TRY	13	15	8	7	10	14	15	11	93	10	92

Source: Brandywine Global, Bloomberg, Haver Analytics and Macrobond

What should be obvious is that the macroeconomic, debt, and external variables are all the standard fare of country risk analysis, and are already an integral part of our research. The data are all the most currently available and forecasts are not used. We then simply ordered the data, giving a rank of 1 to 15, with 1 being the best and posing the least risk, 15 the worst. India, for example, has the fastest current economic growth rate, while Russia exhibits the largest current account surplus. So these two countries rank first in those categories, while Brazil has the largest budget deficit, giving it a rank of 15. The key: a lower rank suggests a lower risk.

We have added two governance scores, the World Bank's governance effectiveness and the government (G) score from our third party governance component. The advantage of using our G is that it captures more than just governance, but adds political risk and ease of doing business measures. This is the twist that HSBC added to its sovereign scoring framework, the governance factor.

Now we create a composite score. Unlike the HSBC analysis, we decided not to weight the factors for now, believing more work is needed to divine the applicable factor weights. Second, we simply summed the variable rankings to create a composite score. Note there are two composite scores, one that includes just government effectiveness and the other a more comprehensive governance indicator. The country rankings between the two composites differ. This raises the question of which composite ranking is best, particularly in explaining a country's risk. We tested this econometrically, running separate regressions for each composite. For the risk measure we used credit default swaps (CDS).

Chart 2: 5-year CDS versus our ESG Score*

*Factors included in our composite ESG Score are Brandywine's Governance score, real GDP growth, inflation, current account balance, fiscal balance, external debt, import cover ratio and credit growth. Source: Brandywine Global, Bloomberg, Haver Analytics and Macrobond, as at 19 February 2019.

We report the best fitting model in **Chart 2** above. That just happens to be the model that includes our more comprehensive governance score in the credit framework. This model produced the higher R-squared of the two. As a result, the HSBC-sourced credit scoring model with the addition of our comprehensive governance score appears to “fit” the 5-year country CDS reasonably well. This model may identify a pricing anomaly that could be potentially exploited. Of note are the countries that lay above the fitted line. Particularly, the Russia ruble and Brazilian real suggest an opportunity for CDS to fall; CDS and interest-rate spreads are highly correlated. The above model could be used to identify potential long or short positions, and investments where interest-rate compression could occur. That would be a return-generating investment for a sovereign bond investor. As always, further fundamental analysis is required to identify the investment catalyst.

One Step In Front Of the Other: Some Implications

By utilising the HSBC framework we were able to incorporate governance into a credit scoring framework. However, this is not the be all and end all. The future steps to further develop the ESG framework of our analysis are partially listed below:

1. **Consider adding social and environmental factors to the scoring framework.** Earlier research has shown these components to offer less explanatory value, since these forces tend to act on economies over longer periods of time and the data frequency is limiting.

2. **A variable weighting scheme needs to be developed.** We would expect some variables to be more important than others.

3. **A history needs to be created.** Our overview here focused on a point in time, but it is important to know how these variables change over time, whether there is improvement or deterioration. Is there predictive potential?

4. **Increase the country coverage of this analysis.** For this review we just looked at a subset of emerging market countries. Taking a cue from HSBC’s analysts, we need to add other countries, both emerging market and developed market economies—taking one step at a time.