Emerging markets debt: Determinants of sovereign bond quality and returns

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- In this paper, Eaton Vance explores the key drivers of sovereign bond ratings, spread performance and frequency of defaults for a data set of 127 countries from 2000 to 2016.
- The findings demonstrate the determinant role that economic policy plays, in particular, which is analysed alongside other macro variables related to the real economy, external sector and political orientation of the government.
- In our experience as EMD managers, we have seen that when we can identify countries implementing certain types of policies – i.e., those that enhance economic freedom – and that exhibit improvements for other country-level macro factors, then we stand to make capital gains for our investors.
- At the same time, if we can avoid countries implementing policies that lead to deteriorating economic freedom and with poor or worsening macro factors, then we are better able to avoid a loss.
- We have also seen that economic policy matters most during times of economic duress and that by investing in countries with improving levels of economic freedom, we are more likely to protect capital on the downside and earn better risk-adjusted returns through the economic cycle.

Introduction

The triumph of free markets following the collapse of command economies from 1989 to 1991 made clear which economic system produced superior socioeconomic outcomes – at least, so far as the outcomes could be observed anecdotally.

By the 1990s, academicians began to empirically measure levels of economic freedom; the Fraser Institute's Economic Freedom of the World Index, first published in 1996,[1] and the Heritage Foundation's Index of Economic Freedom are perhaps the most well known.

Utilising these tools, researchers started to investigate the relationship between economic policies and outcomes for GDP growth, poverty, child labour, life expectancy, literacy, potable water and a host of other development indicators.[2]

Not surprisingly, these studies moved beyond the anecdotal, showing that higher levels of economic freedom correlate positively to desirable socioeconomic outcomes.

Research into the relationship between the absolute level of economic freedom and investment outcomes yielded a different conclusion, however, showing no correlation.[3]

In this paper, we share proprietary research findings to show that what affects the investment returns of emerging markets debt (EMD), through changes in cash flow or the discount rate, are government policies that change the level of economic freedom, not the absolute level of economic freedom itself.

There is a paucity of research in this area. We believe our research helps to fill this gap, while also providing insight into Eaton Vance's approach to country research and investing in the EMD asset class.

Methodology. In this study, we analyse hard-currency sovereign bonds of 127 different countries from 2000 to 2016 (Exhibit A). Confirming the earlier work of Roychoudhury and Lawson,[4] we first show how sovereign spreads and credit ratings correspond to economic policy orientation using the Fraser Institute's Economic Freedom of the World Index dataset.

Second, we present the findings of our regression analysis investigating how significantly economic policy and key macro factors impact sovereign bond ratings, spreads and the frequency of defaults. The results for each variable are ranked by order of impactfulness.

Defining economic freedom. The Fraser Institute's Economic Freedom of the World (EFW) Index dataset, which offers the most comprehensive assessment of political-economic policies, represents a key framework in which our analysis is conducted. The EFW Index reports nearly 50 measures of each country's political-economic policy and risk environment. Each metric assigned to one of five areas:

1. Size of government: extent to which a country relies on the political process rather than the free-market to allocate capital, labor, goods and services.
2. Legal system and property rights: scope of the rule of law, security of property rights, and the existence of an independent, unbiased judiciary.

Exhibit A

Moody's sovereign ratings breakdown (2000-2016).

Investment grade	
Aaa	274
Aaa3	1
Aa1	41
Aa2	66
Aa3	64
A1	108
A2	101
A3	84
Baa1	107
Baa2	103
Baa3	132

Below investment grade	
Ba1	104
Ba2	66
Ba3	89
B1	163
B2	98
B3	115
Caa1	43
Caa2	9
Caa3	17
Ca	4
Total observations	**1,789**

Source: Damodaran. Country Risk Premiums. (http://pages.stern.nyu.edu/~adamodar) Stern School of Business, New York University.

[1]Gwartney, Lawson, and Block. Economic freedom of the world, 1975-1995. The Fraser Institute, 1996.

[2]Gwartney, Hall, and Lawson. Economic freedom of the world: 2018 annual report. The Fraser Institute, 2018.

[3]Stocker. "Equity returns and economic freedom." Cato Journal. 25 (2005): 583.

[4]Roychoudhury and Lawson. "Economic freedom and sovereign credit ratings and default risk." Journal of Financial Economic Policy 2, no. 2 (2010): 149-162.

3. Sound money: existence of policies and institutions that lead to low and stable rates of inflation and the allowable use of alternative currencies.
4. Freedom to trade internationally: extent of tariffs, efficiencies of customs, a convertible currency and controls on the movement of physical and human capital.
5. Regulation: markets, not governments, determine prices and whether regulatory activities retard entry into business and increase the cost of producing products.

The EFW Index ratings scale goes from 1 to 10, with 10 being the highest score for economic freedom.

The importance of economic policy

In Exhibit B, we can clearly discern how the orientation of economic policy historically corresponds to sovereign bond spreads: Countries in the top quartile of the EFW Index ratings, i.e., those that are the more economically free, enjoy spreads considerably lower than the bottom quartile.

While the differential varies significantly over time, from an annual low of around 230 basis points (bps) in 2006 to a peak of almost 850bps in 2008, that difference always remains meaningfully high.

Exhibit B yields additional insights. Simply, the data suggest that countries ranked in the bottom quartile of the EFW Index, which is representative of emerging markets, stand to benefit from a compression in sovereign spreads by implementing policies that strengthen and reinforce economic freedom; vice versa, countries implementing policies that diminish economic freedom stand to see a widening in their sovereign bond spreads.

Furthermore, Exhibit B shows that economic policy matters most in risk-off markets. The bottom-quartile group saw spreads widen significantly during the market downturn in 2002, the onset of the global financial crisis in 2008 and, lastly, following the measured normalisation in Federal Reserve monetary policy beginning in 2013.

> "Emerging markets countries stand to benefit from a compression in sovereign spreads by implementing policies that strenghten and reinforce economic freedom."

Identifying countries making policy improvements that will help lift them from the dotted to the solid line is core to our investment approach. Focusing on these countries can help us to invest in bonds that are more likely to see an appreciation and preservation of capital.

Not surprisingly, countries with higher scores for economic freedom also enjoy higher credit ratings (Exhibit C). As investors, our research is geared toward finding countries represented on the lower-rated right side of the chart that are implementing better policies (i.e., increasing economic freedom) and are en route to the left side of the chart.

In the same way that equity analysts are trying to forecast corporate earnings, we forecast government policy developments in order to identify the most attractive sovereign credits for investment and those that we believe are best avoided.

Determinants of bond quality and performance

As we will see in this section, the analysis of the data shows that changes in economic policy act as a primary determinant of sovereign bond performance. However, economic policy is not the only factor at play and neither is it the sole factor that we evaluate when conducting our in-depth country research.

Exhibit B

Economic freedom and sovereign bond spreads.

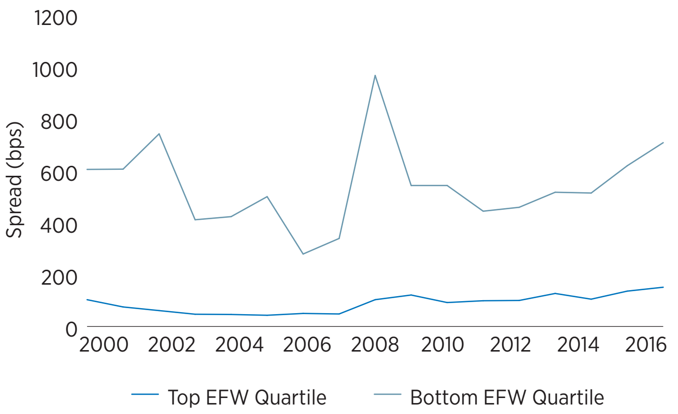
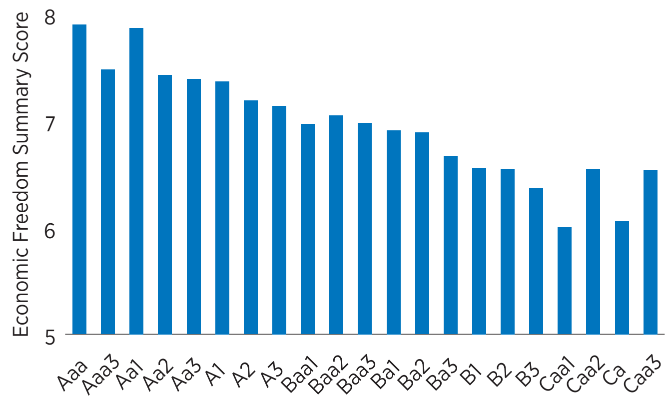


Exhibit C

Economic freedom and Moody's credit rating.



Sources: Damodaran. Country Risk Premiums. (http://pages.stern.nyu.edu/~adamodar), Stern School of Business, New York University; Gwartney, Hall, and Lawson. Economic freedom of the world: 2018 annual report. The Fraser Institute, 2018.

In our analysis, we employed a random effects ordered probit regression model in line with the approach taken by Al-Sakka and Gwilym, who noted, "Estimation of sovereign rating migrations can be improved by considering the sources of heterogeneity such as (country-specific heterogeneity)."[5]

Equations[6]:

$$\text{Moody's ratings}_{i,t} = \beta_0 + \beta_1 EFW_{i,t} + \beta_2 X_{i,t} + \theta_{i,t} \quad (1)$$

$$\text{Country spread}_{i,t} = \beta_0 + \beta_1 EFW_{i,t} + \beta_2 X_{i,t} + \theta_{i,t} \quad (2)$$

$$\text{Default}_{i,t} = \beta_0 + \beta_1 EFW_{i,t} + \beta_2 X_{i,t} + \theta_{i,t} \quad (3)$$

Where:

i	=	country
t	=	year
β	=	regression coefficient
EFW	=	economic freedom score
X	=	matrix of macro variables
θ	=	error term

We did not lag the economic freedom variable for two reasons. First, we proceeded on the assumption that markets are efficient. Second, the approach is also consistent with existing research illustrating that capital markets react coincidentally to changes in economic policy.[7]

Sovereign bond ratings. The empirical results from our regression model for sovereign bond ratings are compelling.[8] The findings show a strong correlation between the orientation of economic policy, as measured by the EFW Index score, and Moody's ratings.

For our analysis, we converted Moody's ratings to an ordinal scale of 1 to 21, with 1 representing the most creditworthy bonds. The findings demonstrate that rising economic freedom corresponds to a fall in the ordinal rating number, an improvement in creditworthiness.

Broadening our analysis to include a wider range of factors, we see that economic freedom remains the most important variable, but others are also significant at the 99% level (Exhibit D).

External liquidity is important, with higher or lower reserves as a percentage of GDP being a determinant for higher or lower sovereign credit ratings, respectively. While external durability is clearly significant, the results do not indicate that terms-of-trade volatility affects credit ratings.

Not surprisingly, higher long-term external indebtedness as a measure of economic output proves to be associated with a worsening in the credit ratings data, and lower long-term debt with an improvement. Short-term debt as a percentage of FX reserves, however, is not significant.

Five-year real GDP growth per capita ranks as the third most impactful ratings driver, while on an absolute purchasing power parity level, per capita GDP ranks as the fifth most significant driver.

Inflation, another real economy variable, is not a significant determinant of bond quality, according to the results.

Lastly, the research yielded an interesting finding related to political freedom. Although economic policy plays a more determinant role, political organisation and the level of political freedom also plays a role, with autocratic governments showing some correlation to improvements in sovereign bond ratings.

This observation warrants additional investigation. However, it is worth noting that wealthier developed markets democracies are experiencing a decline in economic freedom as voters push for policies aimed at redistribution.[9]

Exhibit D

Factor effects on Moody's ratings.

Factor	Improves rating	Worsens rating
1. Economic freedom	Higher	Lower
2. Reserves as % of GDP	Higher	Lower
3. Five-year GDP growth per capita	Faster	Slower
4. Polity	Autocracy	Democracy
5. Per capita GDP PPP$	Higher	Lower
6. Long-term debt as % of GDP	Lower	Higher

No effect
Terms-of-trade volatility
Short-term debt as % of FX reserves
Inflation

Source: Eaton Vance, as of 31 August 2019.

[5] Al-Sakka, Rasha, and Owain ap Gwilym. "Split sovereign ratings and rating migrations in emerging economies." Emerging Markets Review 11, no. 2 (2010): 79-97.

[6] A variance inflation factor (VIF) test was performed on independent variables. No concerns for multicollinearity arose, as VIF measures were all less than 1.60.

[7] Stocker. "The price of freedom: A Fama–French freedom factor." Emerging Markets Review 26 (2016): 1-19.

[8] Empirical results are not reported here, but are available upon request. Please contact your local business development professional at Eaton Vance.

[9] Stocker. "Crisis facilitates policy change, not liberalization." Journal of Financial Economic Policy 8, no. 2 (2016): 248-267.

Exhibit E

Factor effects on country sovereign spreads.

Factor	Narrows spread	Widens spread
1. Economic freedom	Higher	Lower
2. Five-year GDP growth per capita	Faster	Slower
3. Long-term debt as % of GDP	Lower	Higher
4. Reserves as % of GDP	Higher	Lower
5. Polity	Autocracy	Democracy

No effect
Per capita GDP PPP$
Short-term debt as % of FX reserves
Inflation
Terms-of-trade volatility

Source: Eaton Vance, as of 31 August 2019.

Sovereign spreads. Similar to sovereign ratings, the research indicates that economic policy is the primary determinant of yield spreads. In this way, the data confirms what we would expect: Sovereign issuers that implement market-friendly policies are rewarded with lower borrowing costs and vice versa, deterioration in economic freedom correlates to a widening in spreads.

Five-year GDP growth per capita, reserves as a percentage of GDP and polity are all important determinants of spread performance with significance at the 99% level, according to our analysis (Exhibit E).

While long-term debt as a share of economic output also exerts an influence, like with our ratings analysis, short-term debt as a share of FX holdings did not prove to be a significant variable.

Inflation, terms-of-trade volatility and absolute levels of per capita GDP (PPP$) had no statistically significant effect on spread performance either.

Default status. In contrast to findings for sovereign ratings and spreads, results show that economic policy is not the top determinant for frequency of sovereign default (economic freedom ranks second). Per capita GDP on a purchasing power parity basis is the most significant factor, which is not surprising, as the data indicates that wealthier developed markets countries are less likely to default than their emerging markets peers. Given that growth in mature economies is typically below that of emerging markets, such logic also partially explains why slower, not faster, growth in five-year GDP per capita is associated with a lower frequency of defaults. An alternative explanation could be that default events are preceded by excessively high GDP growth rates caused by excessively high fiscal spending.

Unlike the findings for ratings and spreads, default status remains unaffected by the level of reserves as a percentage of GDP.

Short-term debt, a statistically insignificant factor effect for ratings and spreads, however, stands out as an important driver for default status.

Findings also indicate that inflation and terms-of-trade volatility have a negligible effect on default status.

"Economic policy has proven to matter most during times of economic duress."

Exhibit F

Factor effects on frequency of default status.

Factor	Less time in default	More time in default
1. Per capita GDP PPP$	Higher	Lower
2. Economic freedom	Higher	Lower
3. Five-year GDP growth per capita	Slower	Faster
4. Short-term debt as % of FX reserves	Lower	Higher
5. Polity	Autocracy	Democracy
6. Long-term debt as % of GDP	Lower	Higher

No effect
Terms-of-trade volatility
Reserves as % of GDP
Inflation

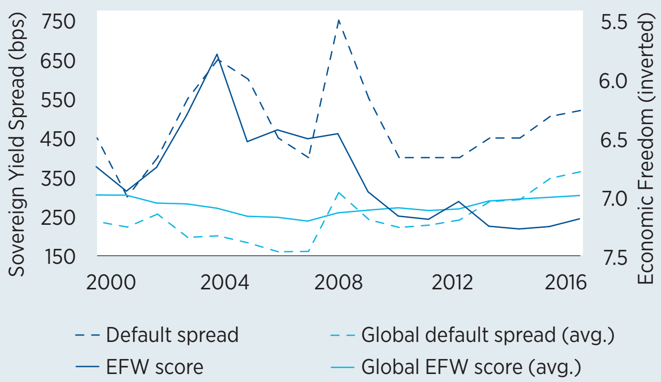
Source: Eaton Vance, as of 31 August 2019.

Exhibit G

Case studies – Economic freedom and sovereign spreads.

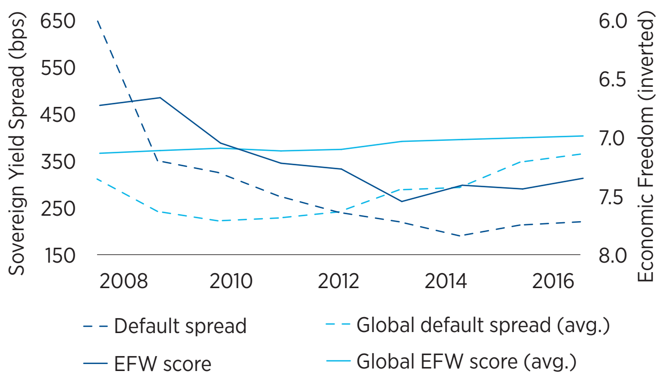
Dominican Republic

- The Dominican Republic has made steady gains in economic freedom since 2004.
- The country's economic freedom is higher than the average country in the data set, as of 2016.
- Spreads, however, remained stubbornly high, which made 2016 a good time to earn carry given that the policy environment was sanguine.



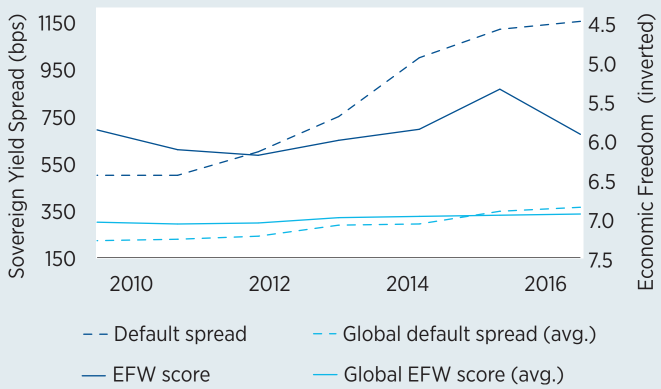
Philippines

- Debt markets appear to have anticipated the 2010 election of President Benigno Aquino III in the Philippines.
- Aquino oversaw steady improvements in economic freedom from 2010 to 2016, with economic freedom rising from below to above the global average.
- Debt markets rewarded the Philippines, with default spreads narrowing to nearly 125bps below the global dataset.



Ukraine

- Ukraine's economic freedom stagnated and then deteriorated, starting under the presidency of Viktor Yanukovych in 2010, when corruption and cronyism flourished.
- Economic freedom continued to worsen after Yanukovych was swept from office in 2014.
- Despite his departure, the decline in economic freedom, evinced by a widening default spread, eventually led to the country's default in 2015.



EFW = Economic Freedom of the World Index; **avg.** = average.

Sources: Eaton Vance, Damodaran. Country Risk Premiums. (http://pages.stern.nyu.edu/~adamodar), Stern School of Business, New York University.

Conclusion

In this paper, we have explored the key drivers of sovereign bond quality and performance and demonstrated the determinant role that economic policy, in particular, plays. At Eaton Vance, we pay particular attention to economic policy as part of our research process. As EMD managers, we believe that when we can identify countries implementing certain types of policies – i.e. those that enhance economic freedom – and that exhibit improvements for other country-level macro factors, then we stand more likely to make capital gains for our investors. At the same time, if we can avoid countries implementing policies that lead to deteriorating economic freedom and with poor or worsening macro factors, then we are potentially better able to avoid a loss.

We have also seen that economic policy has proven to matter most during times of economic duress. As such, we believe that by investing in countries with improving levels of economic freedom, we are more likely to protect capital on the downside and earn better risk-adjusted returns through the economic cycle.

Bibliography

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In emerging market countries, the risks may be more significant in regards to sensitivity to stock market volatility, adverse market, economic, political, regulatory, geopolitical and other conditions.

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