
**DISCUSSION
PAPER**

MTI Global Practice

No. 14
June 2019

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Governance Improvements and Sovereign Financing Costs in Developing Countries

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Abstract

More and more developing country governments are tapping the global debt capital markets. This is increasing the amount of finance available for development, but at a considerably higher cost than traditional external borrowing on concessional terms. Using a novel methodology based on estimating sovereign credit ratings using the Moody's scorecard, and examining the associations between these ratings and the World Bank's Country Policy and Institutional Assessment (CPIA) scores, this paper examines how making improvements in the quality of economic policies and institutions can help lower governments' financing costs. Better CPIA scores are associated with better estimated ratings and materially lower financing costs; on average, improvements which are sufficient to increase a CPIA indicator score by 1 point are associated with interest costs which are lower by about 170 basis points. Estimated cost savings are the largest for countries with weaker initial ratings and commensurately high external debt issuance costs, consistent with governance concerns contributing significantly to the large risk premia faced by weaker borrowers.

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JEL Classification: F34, H63

Keywords: Governance, Debt Management, Sovereign Credit Ratings

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Governance Improvements and Sovereign Financing Costs in Developing Countries

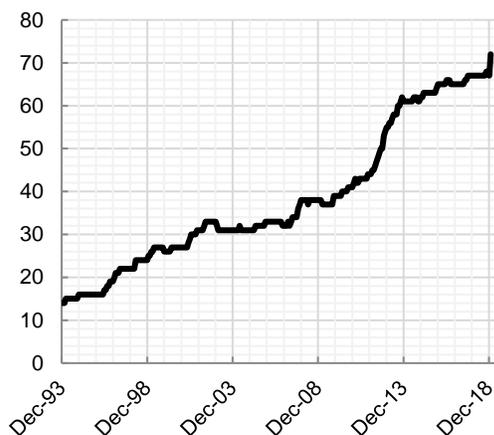
Michael Brown and Alex Sienaert

1. Introduction

In the last decade, a growing number of governments in Emerging Market and Developing Economies (EMDEs) have tapped global debt capital markets for financing. For example, the number of countries included in a widely-followed index of EMDE sovereign US dollar bonds, the JP Morgan Emerging Market Bond Index Global (EMBIG), has increased from 14 around the time of its inception in 1992 (to track the returns of so-called “Brady bonds”), to 38 at the end of 2007, and 72 as of January 2019.

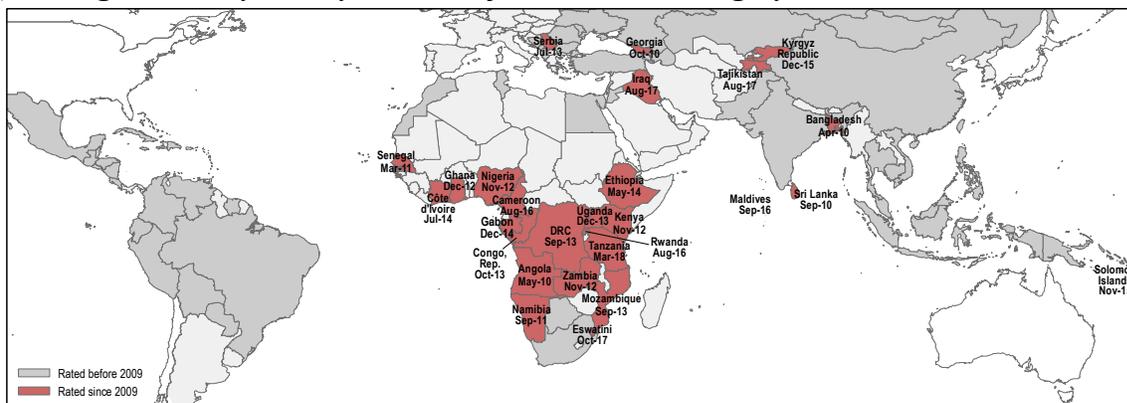
Reflecting their increasing participation in the global debt capital markets, a growing number of developing country governments are now rated by the major commercial credit rating agencies. For example, of the 137 countries classified as low- or middle-income economies by the World Bank in 2018, the number rated by Moody’s increased from 53 as of November 2009 to 82 as of November 2018 (Figure 2).

Figure 1: Number of Countries Included in the JP Morgan Emerging Market Bond Index (EMBIG)



Source: JP Morgan

Figure 2: The Rising Number of Low- and Middle-Income Countries with Sovereign credit ratings
(sovereigns rated by Moody’s since before 2009, shaded gray, and since 2009, shaded red)



Notes: Date labels show rating commencement date

Sources: Data from Moody’s Statistical Handbooks (Country Credit)

The shift towards developing country governments becoming rated entities and using debt market financing puts financing costs in focus. Hard currency borrowing at market rates is considerably costlier for developing countries than borrowing on concessional terms from traditional bilateral and multilateral sources. The increased cost, however, is unavoidable for countries whose government financing needs have grown beyond what can be covered by the traditional non-market sources or by borrowing domestically in their own (often shallow) credit markets. The higher costs of non-concessional external borrowing, notably by issuing bonds (the cost of which is the focus of this paper) may be justified where this debt finances investments with high social returns (for example, impactful infrastructure investments, or sound investments in education and health systems which build human capital). As governments' financing mixes tilt towards taking on more external debt at market rates, the importance of understanding how governments can minimize the costs increases too.

This paper examines the link between developing country governments' financing costs, and the quality of their policies and institutions (broadly, 'governance'). It supposes that countries' sovereign credit ratings are affected substantially by the quality of government policies and institutions, and that these ratings in turn are associated with differing financing costs (either causally, because they help determine borrowing costs [see next section for references and some plausible channels], or simply because they correlate with market risk premia). The analysis contributes to the literature on the determinants of sovereign financing costs in developing countries by using a novel approach that evaluates the relationship between governance indicators and financing costs through the lens of estimated country credit ratings.

2. Literature Summary

A sovereign's market borrowing cost is affected by the premium required to compensate investors for the risk that it defaults on its debt service obligations (the credit risk premium), and this premium is in turn affected by the quality of the country's governance (institutions and policies). While this claim is not open to serious doubt, it remains the subject of a large and growing literature attempting to clarify and quantify the mechanisms at work.

The rating actions of commercial credit rating agencies impact sovereign debt prices, but the channels through which they do so, and magnitudes, are contested. A recent overview of the literature is provided by Kiff, Nowak and Schumacher (2012), who cite evidence that rating changes can have significant impacts on debt prices (for example, when countries are moved between "investment grade" and "speculative grade" ratings). They also provide a useful typology of the theories of why ratings can be expected to be relevant for market prices, namely through the channels of (i) providing specialized information on default risk probability that affect investors' decisions and hence pricing, (ii) providing certification services (e.g. characterizing bond default risks in ways that are relevant for index inclusion and hence impact liquidity and pricing), and (iii) monitoring services, whereby rating agencies' *visible* ratings and intentions to change ratings (credit watch procedures) act as focal points for market actors and issuers alike, affecting their behaviors and pricing (e.g. prompting action by issuers to avoid a downgrade). For the purposes of this paper, however, what matters is simply that bond ratings are correlated with yields (not necessarily that they drive them), as it is through estimated ratings that we infer the extent to which better governance is associated with lower yields. (This association could be because better credit

ratings reduce yields or simply because better credit ratings are correlated with lower yields. Regardless, we can expect that countries with better credit ratings will generally have lower debt costs.)

The quality of policies and institutions (governance) plausibly affects sovereign borrowing costs. A leading paradigm in the literature on the determinants of sovereign bond spreads is that they are driven by a combination of “push” (global interest rate, liquidity and risk appetite factors) and “pull” (country-specific) factors (see, for example, Haque, Bogoev & Smith, 2017). Amongst the pull factors, the analytical focus tends to be on macroeconomic and financial indicators linked to default risk and hence risk premia, rather than on governance and institutional quality (a seminal contribution to this literature for developing countries is Eichengreen and Mody [1998]). Clearly, however, macroeconomic performance is partly a function of the quality of a country’s institutional and policy frameworks: the better the quality of governance, the more stable and high-performing an economy is likely to be, and the lower the credit premium will be that investors demand to compensate for default risk. From a credit risk perspective, another useful paradigm is to characterize default risk as a function of weaknesses in a country’s *willingness* and *ability* to service its debts (see for example Toksöz, 2014). Governance quality surely affects both factors. A distinction is also often drawn between political and economic risks, but this distinction is artificial insofar as governance can both affect, and be affected by, both political and economic developments.

There is empirical evidence that governance matters for sovereign debt prices. For OECD countries, Crifo, Diaye and Oueghlissi (2017) find that governments’ Environmental, Social and Governance (ESG) performance are associated with lower borrowing costs, though with a magnitude only one-third that of financial metrics (which they infer means that investors use these non-financial ratings as a supplement to financial ratings when making investment decisions); it seems to reasonable to suppose that governance performance will be a more prominent factor in investment decisions in weaker (non-OECD) governance settings due to diminishing marginal returns to credit quality from better governance. Indeed, several papers find links between political instability and corruption, and sovereign borrowing costs (Connolly [2007], as cited by Crifo, Diaye and Oueghlissi [2017]).

This paper bases its analysis on estimated country credit risk ratings, even for countries which do not have actual public credit ratings from the major commercial rating agencies. The idea of estimating ratings for all developing countries is not novel; for example, Canuto, Mohapatra & Ratha (2011) estimate “shadow sovereign ratings” for developing countries using a regression-based methodology capturing “macroeconomic variables, rule of law, debt and international reserves, and macroeconomic volatility”. The authors emphasize that the shadow ratings they obtain for many unrated governments are not at the bottom of the ratings range, which is consistent with our findings. However, to our knowledge this is the first paper to estimate country credit risk ratings for a large sample of developing countries, and investigate their association with governance performance, based on an implementation of Moody’s scorecard-based rating methodology.

3. Data and Methodology

We develop a set of ‘estimated ratings’ for EMDEs using Moody’s published rating methodology (Moody’s Investors Service, 2018). Moody’s ratings are informed by a scorecard that evaluates four factors: (i) economic strength, (ii) institutional strength, (iii) financial strength, and (iv) event risk. Each factor includes quantitative subfactors (such as growth rates, inflation, or public debt) that are sorted into scores ranging from “Very High +” to “Very Low –” based on a distribution described in the rating methodology. For example, an average annual growth rate above 4.5 percent scores as “Very High +” while an average growth rate below 0.5 percent scores as “Very Low –”. The subfactor scores are aggregated to generate overall factor scores for economic, institutional and financial strength and event risk. The four factor scores are then combined to generate a three-notch rating range, which Moody’s uses as guide for the rating committees which determine its published sovereign credit ratings.

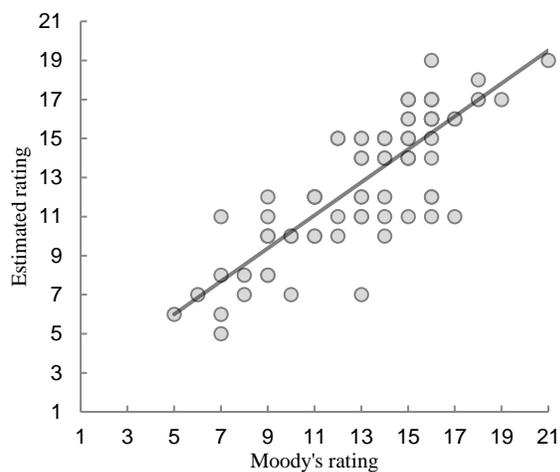
To create the estimated ratings, we construct a full dataset to populate our replica of the Moody’s rating scorecard. Our dataset provides the necessary data to simulate Moody’s calculation of economic, institutional and financial strength for two years: 2005 and 2018; this choice of years is informed by our governance data – countries’ CPIA scores – which are described below. The final factor, event risk, requires data that cannot be automated (Moody’s banking sector assessment, for example) and, as a result, we hold the score for event risk constant for each country at the midpoint (“Moderate”). Moody’s scorecard generates a three-notch rating range and so for each country we take the midpoint of this range as the expected rating (e.g. a range of Baa1 – Baa3 results in a rating of Baa2). The scorecard produces numerical ratings corresponding to the familiar alphanumeric rating scale published by Moody’s, with higher numbers indicating weaker ratings, from 1 (Aaa, lowest credit risk) to 21 (C, lowest rating, typically indicating default with little if any potential recovery) (Table 1).

For countries with actual Moody’s credit ratings, our estimated ratings track official ratings closely. As of end- 2018, Moody’s rated 82 of the 137 countries classified by the World Bank as low- or middle-income, allowing us to compare our estimated ratings for accuracy. Estimated ratings are within one notch of the actual rating 67 percent of the time and within two notches 77 percent of the time. Gaps of 3 notches or more occurred only in only 23 percent of cases. Overall, based on regressing the Moody’s ratings on our estimated ratings, 95 percent of the actual ratings are within 3.8 notches of the best-fit line (regression standard error: 1.9), and there is no sign of any directional bias in the estimates (Figure 3).

Table 1: Mapping of Numerical Ratings Corresponding to Published Moody's Ratings

| | | | | | |
|-------------------------|----|------|-----------------------------|----|------|
| Investment grade | 1 | Aaa | Non-Investment Grade | 11 | Ba1 |
| | 2 | Aa1 | | 12 | Ba2 |
| | 3 | Aa2 | | 13 | Ba3 |
| | 4 | Aa3 | | 14 | B1 |
| | 5 | A1 | | 15 | B2 |
| | 6 | A2 | | 16 | B3 |
| | 7 | A3 | | 17 | Caa1 |
| | 8 | Baa1 | | 18 | Caa2 |
| | 9 | Baa2 | | 19 | Caa3 |
| | 10 | Baa3 | | 20 | Ca |
| | | 21 | C | | |

Figure 3: Actual and Estimated Moody's Ratings



To capture the quality of governance, institutions and policies, and relate these to our estimated ratings, we use the World Bank's Country Policy and Institutional Assessment (CPIA) scores. These assess how well countries' policy and institutional frameworks function in support of growth, poverty reduction, and the effective use of development assistance.¹ The assessment scores countries on a 1-6 point scale with 0.5 unit increments across 16 criteria divided into four clusters (Table 2). We focus on the two clusters, comprising eight indicators, most likely to directly influence the risk premium attached by external creditors to government debt: Cluster (A) Economic management, and Cluster (D) Public sector management and institutions. This is not to dismiss the crucial importance for development of factors captured by the other two clusters (Structural Policies, and Policies for Social Inclusion), but by their nature these are likely to filter into sovereign credit performance more indirectly, or more gradually, than is the case for performance in economic and public sector management.

¹ This paragraph and Table 2 is based on the document "CPIA 2011 Criteria", available at: <http://siteresources.worldbank.org/IDA/Resources/73153-1181752621336/CPIAcriteria2011final.pdf>

Table 2: Summary of World Bank Country Policy and Institutional Assessment (CPIA) Criteria

| Abbreviation | CPIA criteria | Comments |
|--------------|--|--|
| ECON | A. Economic management | This cluster score aggregates the scores for its constituent indicators 1-3 below, to capture the extent to which the country's overall economic policy framework supports growth and development; higher scores should be credit-positive. |
| MACR | 1. Monetary and exchange rate policies | Higher scores mean policy and institutional frameworks better-supporting internal and external macroeconomic balances, and better flexibility to adjust to shocks. |
| FISP | 2. Fiscal policy | Higher scores mean that fiscal policies are better at stabilizing the economy over the cycle and following shocks, and more effective at providing public goods. |
| DEBT | 3. Debt policy and management | Higher scores mean that debt management strategy and implementation is more conducive to debt sustainability and helps to minimize financing risks to the budget. |
| STRC | B. Structural policies | Excluded from the analysis, as likely to influence sovereign credit quality less directly. |
| TRAD | 4. Trade | |
| FINS | 5. Financial sector | |
| BREG | 6. Business regulatory environment | |
| SOCI | C. Policies for social inclusion/equity | |
| GNDR | 7. Gender equality | |
| PRES | 8. Equity of public resource use | |
| HRES | 9. Building human resources | |
| PROT | 10. Social protection and labor | |
| ENVR | 11. Policies and institutions for environmental sustainability | |
| PUBS | D. Public Sector Management and institutions | |
| PROP | 12. Property rights and rule-based governance | Higher scores indicate stronger property and contract rights, a better legal and judicial system, and lower crime and violence |
| FINQ | 13. Quality of budgetary and financial management | Higher scores indicate more comprehensive and credible national budgets which embed policy priorities, along with more effective financial management resulting in better budgetary implication, and time and accurate fiscal reporting, including transparent audits and follow-up actions. |
| REVN | 14. Efficiency of revenue mobilization | Higher scores indicate better tax policy and administration, encompassing effective revenue mobilization with as little distortion of economic activity as possible, the stability, clarity and predictability of tax laws, and the extent to which tax administration is efficient, rules-based and transparent. |
| PADM | 15. Quality of public administration | Higher scores indicate that the civil service performs better in terms of managing its operations and human resources and implementing and managing regulations. |
| TRAN | 16. Transparency, accountability and corruption in the public sector | Higher scores indicate stronger accountability and oversight mechanisms, more and better access by civil society to information which is relevant to the oversight of the executive, decreased influence of vested interests in policies and resource allocation, and better integrity in the use of public resources. |

The CPIA scores capture the World Bank's assessment of the quality of countries' governance. There is evidence that they are a good predictor of future economic growth (Gonzalez & Nishiuchi, 2018). Based on this, and on the fact that commercial agencies' sovereign credit rating methodologies consider many governance-related metrics, our prior is that estimated ratings will be associated with the CPIA scores, and particularly those in the Economic Management (ECON) and Public Sector Management and Institutions (PUBS) clusters. Improvements, or deteriorations, in macroeconomic management and the quality of governance are captured in factor two of Moody's scorecard: Institutional Strength. As such, strengthening the quality of governance in a country can be linked to changes in a country's credit rating and, by extension, its borrowing costs on global markets.

The CPIA scores for 2005-2017 are publicly available for 73 countries, and we estimate ratings for all these countries in 2005 and 2018.² As of the end of 2018, only 25 of these countries had official Moody's ratings (although this is up from just eight a decade before). Our method of estimating ratings aims to overcome this small sample limitation, to examine the link between governance quality for all countries with CPIA scores, and ratings. The estimated ratings for all 73 countries with public CPIA scores between 2005 and 2017 constitute the panel data behind the results described below.

4. Results

4.1. Regression Results

The estimated Moody's ratings are correlated with a number of CPIA indicators, many of which are strongly correlated with one another (Table 3). The pairwise correlations with the estimated Moody's ratings (RATING) which stand out are the scores for fiscal policy (FISP) and the quality of budget and financial

Table 3: Pairwise Correlation Coefficients

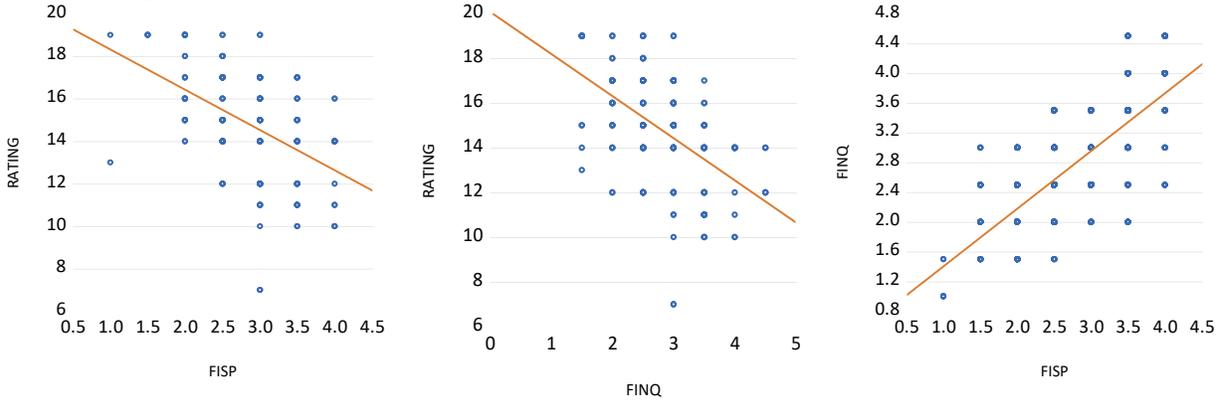
| | RATING | MACR | FISP | DEBT | PROP | FINQ | REVN | PADM | TRAN |
|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| RATING | 1.00 | -0.42 | -0.51 | -0.30 | -0.38 | -0.52 | -0.36 | -0.47 | -0.40 |
| MACR | -0.42 | 1.00 | 0.54 | 0.63 | 0.63 | 0.53 | 0.68 | 0.80 | 0.72 |
| FISP | -0.51 | 0.54 | 1.00 | 0.44 | 0.66 | 0.76 | 0.51 | 0.76 | 0.53 |
| DEBT | -0.30 | 0.63 | 0.44 | 1.00 | 0.55 | 0.40 | 0.82 | 0.77 | 0.89 |
| PROP | -0.38 | 0.63 | 0.66 | 0.55 | 1.00 | 0.57 | 0.64 | 0.87 | 0.68 |
| FINQ | -0.52 | 0.53 | 0.76 | 0.40 | 0.57 | 1.00 | 0.44 | 0.66 | 0.45 |
| REVN | -0.36 | 0.68 | 0.51 | 0.82 | 0.64 | 0.44 | 1.00 | 0.81 | 0.91 |
| PADM | -0.47 | 0.80 | 0.76 | 0.77 | 0.87 | 0.66 | 0.81 | 1.00 | 0.88 |
| TRAN | -0.40 | 0.72 | 0.53 | 0.89 | 0.68 | 0.45 | 0.91 | 0.88 | 1.00 |

management (FINQ). Many CPIA indicators are also strongly correlated with other indicators, as is to be expected given that the scores capture different, but usually related, dimensions of the quality of policymaking and institutions. For example, the correlation between FISP and FINQ, the two indicators most correlated with RATING, is a very strong 0.76.

Regression-based estimates of the magnitude of the link between CPIA scores and ratings, whilst informative, have limited precision. The CPIA scores are clearly far from orthogonal (as shown by Table 3), causing multicollinearity which prevents individual parameters from being estimated reliably. For example, taking the two most-strongly correlated CPIA scores with the estimated rating, FISP and FINQ, it is apparent that both are strongly associated with RATING, and with each other (Figure 4). Consequently, a regression containing both FISP and FINQ as explanatory variables would be unlikely to be able to distinguish between their independent effects. In addition, both the estimated ratings (RATING) and the CPIA scores are ordinal numbers not continuous variables. An ordered choice model could account for the dependent variable being an ordinal ranking but is not appropriate when both the dependent and independent variables are ordinal. Recognizing these challenges to statistical inference by regression, this paper reports the data associations as revealed by a range of simple, ordinary least squares regressions, and seeks to further substantiate the validity of the estimated relationships by examining them also along the time dimension.

² The data are available at: <https://datacatalog.worldbank.org/dataset/country-policy-and-institutional-assessment>. The latest, 2017 CPIA indicators were published in 2018 based on the latest data available at that time, so it is appropriate to match these with 2018 estimated ratings.

Figure 4: FISP and FINQ Both Have Strong Associations with RATING, and They are Also Strongly Correlated with Each Other (Scatter Plots with Linear Best-Fit Lines)



Univariate and multivariate regressions indicate that better governance scores are associated with better estimated ratings, both in terms of statistical significance and the magnitude of the associations. Table 4 reports, first, the results of univariate regressions of the estimated rating on each of the CPIA indicators, showing all of them to be statistically significantly associated, with an average magnitude of -1.6. Second, the results of a multivariate regression including all the CPIA scores is shown, which suffers as expected from multicollinearity, causing only FISP, FINQ and TRAN to appear to be statistically significant at the 10% level. Third, the results of a multivariate specification with forward stepwise variable selection is shown. This discards PROP and REVN but, while it has a little more predictive power than the multivariate regression (a standard error of 1.92 against 2.02), it ends with very similar results in terms of statistically significant coefficient magnitudes to those of the multivariate regression including the full set of CPIA indicators.

Table 4: Regression Results (Estimated Ratings as a Function of Selected 2017 CPIA Scores)

Dependent variable: Estimated Moody's rating (higher number = worse rating)

| Variables in levels (pooled sample) | | | | | | | | | | Variables in first differences (2017-2005) | | |
|-------------------------------------|---------|------|------|---------------------|------|-------|---|-----|-------|--|------|------|
| 1. Univariate OLS | | | | 2. Multivariate OLS | | | 3. Multivariate OLS by forward stepwise selection | | | 4. Univariate OLS | | |
| Regressors | β | SE | p | β | SE | p | β | SE | p | β | SE | p |
| MACR | -1.70 | 0.99 | 0.0% | -0.71 | 0.52 | 17.0% | -0.7 | 0.5 | 16.5% | -1.39 | 0.47 | 0.4% |
| FISP | -1.89 | 0.27 | 0.0% | -1.08 | 0.53 | 4.4% | -1.1 | 0.5 | 4.0% | -1.11 | 0.61 | 7.5% |
| DEBT | -1.05 | 0.28 | 0.0% | 0.74 | 0.56 | 18.9% | 0.8 | 0.5 | 17.1% | -1.42 | 0.36 | 0.0% |
| PROP | -1.76 | 0.36 | 0.0% | -0.06 | 0.82 | 93.8% | -- | -- | -- | -2.22 | 0.75 | 0.5% |
| FINQ | -1.88 | 0.26 | 0.0% | -1.15 | 0.41 | 0.5% | -1.1 | 0.4 | 0.5% | -1.44 | 0.48 | 0.4% |
| REVN | -1.16 | 0.25 | 0.0% | 0.34 | 0.57 | 55.5% | -- | -- | -- | -1.10 | 0.34 | 0.2% |
| PADM | -2.34 | 0.37 | 0.0% | 1.85 | 1.99 | 35.5% | 1.7 | 1.3 | 18.8% | -3.33 | 0.73 | 0.0% |
| TRAN | -1.36 | 0.27 | 0.0% | -1.96 | 1.02 | 5.7% | -1.6 | 0.8 | 4.1% | -1.76 | 0.38 | 0.0% |
| Avg. of coefficients with p<10% | -1.64 | | | -1.40 | | | -1.27 | | | -1.72 | | |
| Adjusted R ² | -- | | | 0.31 | | | 0.31 | | | -- | | |
| Regression S.E. | -- | | | 2.02 | | | 1.92 | | | -- | | |

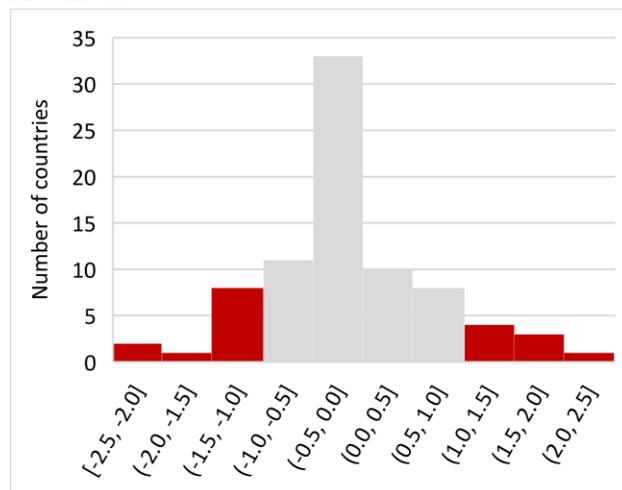
The final column of Table 4 shows the results of univariate regressions in first differences. The changes in all the CPIA scores from 2005 to 2017 are statistically significantly associated with changes in estimated ratings over the same period, and with an economically-significant magnitude, averaging 1.7 (i.e. a 1-point increase in CPIA score is associated with a 1.7 notch improvement in estimated rating). Given the impediments to regression-based statistical inference described above, the coefficient estimates are not likely to be sufficiently precise to support statements about the relative impact of different CPIA indicators on ratings. They do, however, convey the broad picture that higher CPIA indicator scores are associated with significantly higher ratings.

4.2. Considering Actual Rating Changes for Countries with Large Changes in CPIA Scores

Next, we check whether the associations described above are visible also when considering how countries' CPIA scores and *actual* ratings change over time. For this additional dynamic analysis, we are constrained, as above, to the 2005-2018 period (for which CPIA scores are publicly available), and to those countries which had or acquired actual Moody's ratings over the period. We isolate those countries whose CPIA scores changed markedly during the period and ask: what impact did this change appear to have on the country's rating? We consider countries' cluster scores for economic management and for public sector management and institutions (i.e. the sum of all the indicator scores considered above).

This measure captures the aggregate change in our CPIA scores of interest. The tails of the resultant histogram indicate that large changes in this aggregate CPIA score can be considered to be decreases of 1 or more and increases of 1 or more (Figure 5).

Figure 5: Histogram of CPIA ECON+PUBS Score Changes from First Until Last Year Available



By this measure, 27 countries experienced large changes in their economic management and public sector management and institutions scores between 2005 and 2017. Table 5 lists these countries and summarizes their actual sovereign ratings trajectory.

Of the 27, about half (13) had no rating during this period (grey-shaded rows in Table 5), so we cannot judge how their ratings responded to large improvements or deteriorations in CPIA scores.

Nine countries improved their scores and either already had a rating in 2005 or acquired one between 2005 and 2017. In eight of these nine cases, the direction of travel of the rating is positive (either in terms of receiving one or more rating upgrades, or becoming rated for the first time, which we posit generally occurs when countries' have developed a sufficiently positive policy and economic management track record to achieve global market access). In these 8/9 cases, then, large improvements in CPIA scores correspond as per expectations to improvements in ratings. Only one case is anomalous: Cambodia, which saw a significant CPIA score improvement (+1.5) but had an unchanged rating (B2) over the whole period. Moody's cites a still-weak institutional framework as a credit challenge. This suggests that notwithstanding the improvements captured by the CPIA, Cambodia's governance and institutional challenges remain too deep to merit a rating upgrade (though it could also be because Moody's analysis does not adequately account for the improvements)

Five of the 27 countries experienced large deteriorations in CPIA scores and either already had a rating in 2005 or acquired one between 2005 and 2017. In two cases, the rating trajectory accords with expectations from the decline in CPIA scores: (1) St. Vincent and the Grenadines, where

Moody's initiated the rating in 2007 (prior to the decline in CPIA scores) and subsequently downgraded the rating by two notches, and (2) DRC, which experienced a marked CPIA deterioration and plausibly did not downgrade only because the rating (acquired in 2013) was initiated and remained B3, which is the lowest rating unless an imminent default is expected. In three cases, however, the rating trajectory did not obviously match expectations from declining CPIA scores. Honduras' rating (B2) remained unchanged, resilient to a notable decline in CPIA score. Tanzania acquired a rating in 2017 despite a declining CPIA score trajectory. And the Dominican Republic enjoyed a 3-notch rating uplift over the period, despite its CPIA scores worsening (an effect which appears to have been outweighed for the rating by better fiscal metrics).

Despite these exceptions, overall, the results of this analysis over time agree with those from the previous regressions. Large CPIA score changes are associated with rating changes in the expected direction, though they are clearly not deterministic; a range of other factors also decide countries' rating trajectories, introducing considerable noise when attempting to discern the independent impact of governance quality changes. But these changes do appear to matter, albeit with caveats from the small available sample size: amongst the 14 countries for which CPIA scores of interest changed a lot (nine which improved and five which deteriorated), and for which we also have actual ratings, ratings moved in the expected direction in ten cases (71%).

Table 5: The Rating Performance of Countries Experiencing Large Changes in CPIA Economic and Public Sector Management Scores

(Color key: orange = rating changes in line with expectations, grey = no info, red = anomalous)

| # | Country | Change in ECON+PUBS CPIA score, 2005-17 | Rated continually since 2005 or earlier | Acquired a rating between 2005 and 2018 | Country graduated to IBRD (causing CPIA scores to stop being available before 2018) | Rating changes over CPIA change period or since initiation | Rating movement consistent with ECON+PUBS CPIA score change? |
|----|--------------------------------|---|---|---|---|--|--|
| 1 | Georgia | 2.5 | No | ✓ In 2010 | ✓ In 2013 | +1 notch to Ba2 | Yes |
| 2 | Rwanda | 2.0 | No | ✓ In 2016 | | Rating unchanged (B2) | Yes |
| 3 | Tonga | 2.0 | No | No | | | N/A |
| 4 | Zimbabwe | 2.0 | No | No | | | N/A |
| 5 | Burundi | 1.5 | No | No | | | N/A |
| 6 | Cambodia | 1.5 | Yes | | | Rating unchanged (B2) | |
| 7 | Comoros | 1.5 | No | No | | | N/A |
| 8 | Lao PDR | 1.5 | No | No | | | N/A |
| 9 | Bolivia | 1.0 | Yes | | ✓ In 2016 | +1 notch to Baa3 in 2012 | Yes |
| 10 | Cote d'Ivoire | 1.0 | No | ✓ In 2015 | | +1 notch to Ba3 in 2015 | Yes |
| 11 | Kyrgyz Republic | 1.0 | No | ✓ In 2015 | | Rating stable (B2) | Yes |
| 12 | Liberia | 1.0 | No | No | | | N/A |
| 13 | Moldova | 1.0 | Yes | | | +1 notch to B3 in 2010 | Yes |
| 14 | Nigeria | 1.0 | No | ✓ In 2012 | | Rating downgraded by 2 notches to B2 | Yes, since CPIA increases preceded rating initiation |
| 15 | Timor-Leste | 1.0 | No | No | | | N/A |
| 16 | Uzbekistan | 1.0 | No | ✓ In 2018 | | Rating initiated at B1 | Yes |
| 17 | Congo, Dem. Rep. | -1.0 | No | ✓ In 2013 | | Rating unchanged at B3 | Yes (CPIA deteriorated and rating remained at lowest, absent expectation of default) |
| 18 | Eritrea | -1.0 | No | No | | | N/A |
| 19 | Grenada | -1.0 | No | No | | | N/A |
| 20 | Guyana | -1.0 | No | No | | | N/A |
| 21 | Honduras | -1.0 | Yes | | | Unchanged at B2 | No (CPIA deteriorated but rating did not) |
| 22 | Mali | -1.0 | No | No | | | N/A |
| 23 | St. Vincent and the Grenadines | -1.0 | No | ✓ In 2007 | | Rating downgraded by 2 notches to B3 | Yes, since CPIA decrease occurred after rating initiation |
| 24 | Tanzania | -1.0 | No | ✓ In 2017 | | Rating initiated at B1 | No (acquired rating despite CPIA fall) |
| 25 | Dominican Republic | -1.5 | Yes | | | Rating upgraded by 3 notches | No |
| 26 | Guinea | -2.0 | No | No | | | N/A |
| 27 | Yemen, Rep. | -2.5 | No | No | | | N/A |

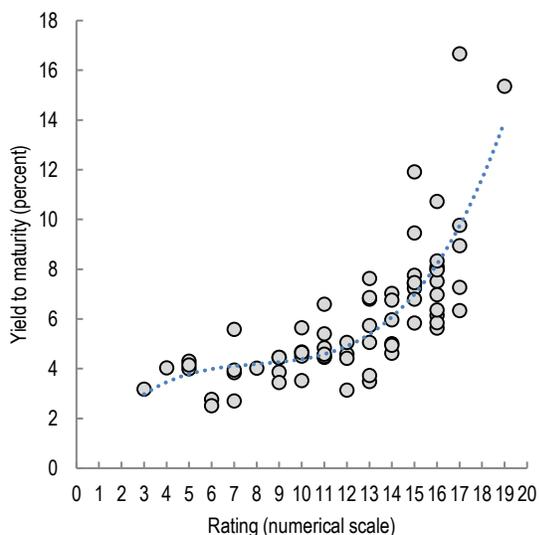
5. Policy Implications

There is an association between countries' CPIA scores and their sovereign credit ratings. The magnitude of the relationship varies across the CPIA indicators, ranging across all regression specifications from the smallest coefficient of -1.05 (DEBT, in univariate regression in levels) to -3.33 (PADM, in univariate regression in first differences). The simple average across regressions of all coefficients which are statistically significant (at the 10 percent level or higher), rounded down to the nearest decimal point, is 1.5. We take this as an indicative estimate of the average effect of a CPIA score change. That is, on average, a 1-point increase (decrease) in CPIA indicator score yields a 1.5 notch improvement (deterioration) in the rating.

To see the financing cost implications, consider Figure 6 which plots the yields to maturity against the actual Moody's ratings of all the EMBIG index constituents.³ The strong relationship is apparent, and it can be summarized by considering yields to be a trinomial function of ratings (see trend line), which explains $\frac{3}{4}$ of the observed variation in yields. An important reason to model the relationship as trinomial is that rating changes appear to have slightly larger effects for the countries with the very best ratings in the EMBIG (3-4/Aa2-Aa3) as compared with middling ratings, and rating changes at the bottom of the scale (14-19/B1-Caa3) correspond to large differences in yields. Table 6 shows the regression results.

³ Excluding only Venezuela, for which the blended yield to maturity is 57.7 percent – an outlier.

Figure 6: Ratings and Yields to Maturity of EMBIG Constituents



Notes: All EMBIG countries except Venezuela (for which yield is an outlier); yields on April 29, 2019

Sources: JP Morgan; Moody's Investors Service

Table 6: Results of Regression of Yield on Rating

Dependent Variable: YIELD

Sample: 171

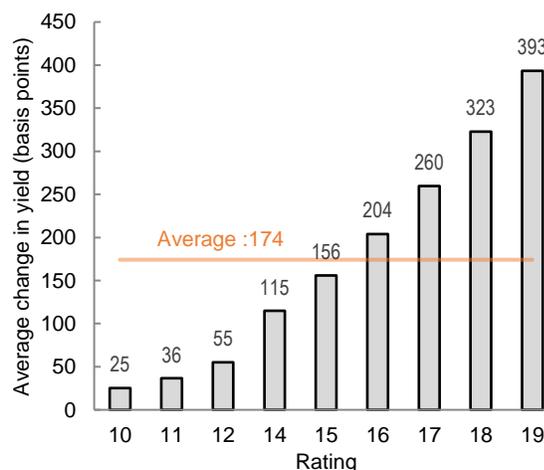
Included observations: 71

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|--------|
| RATING | 1.347887 | 0.154079 | 8.748021 | 0.0000 |
| RATING^2 | -0.151789 | 0.024379 | -6.226290 | 0.0000 |
| RATING^3 | 0.006159 | 0.000943 | 6.530367 | 0.0000 |
| R-squared | 0.765049 | Mean dependent var | 5.921643 | |
| Adjusted R-squared | 0.758139 | S.D. dependent var | 2.163681 | |
| S.E. of regression | 1.064085 | Akaike info criterion | 3.003442 | |
| Sum squared resid | 76.99478 | Schwarz criterion | 3.099048 | |
| Log likelihood | -103.6222 | Hannan-Quinn criter. | 3.041461 | |
| Durbin-Watson stat | 2.220602 | | | |

The average yield reduction from a 1-point CPIA indicator gain, resulting in a 1.5 notch rating upgrade, is 174 basis points (bps). Figure 7 illustrates the reduction in yields for countries with a given initial rating, which ranges from a modest 25 basis points for countries with a strong estimated initial rating of 10 (Baa3) to a very large 393bps for countries with a weak estimated initial rating of 19 (Caa3, the lowest estimated rating in our CPIA sample).

The basic policy implication is that making improvements in the quality of policies and institutions, as recognized by the CPIA indicators, can plausibly lead to substantial reductions in governments' external financing costs. The gains are likely to be the largest for countries with weaker ratings and commensurately high external financing costs. On average, improvements which are sufficient to improve a CPIA indicator score by 1 point are associated

Figure 7: Yield Compression from a 1.5 Notch Rating Improvement.



with a 174bps decline in yield. For a \$1bn bond with a 10-year tenor, for example, issuing the bond with a coupon which is reduced by 174bps would reduce nominal interest costs by \$174m over the life of the bond.

This conclusion requires nuancing. First, the relationship between CPIA score changes and rating changes is by no means deterministic. As is apparent from the regression analysis, CPIA indicators pick up only some factors which drive countries' ratings. Governance improvements that move a country's CPIA score may or may not have a material impact on its sovereign credit rating, depending on its unique circumstances and credit drivers. Similarly, there will be variation in how quickly (if at all) a country's rating responds to governance improvements. The rating might respond quickly when the measures address governance shortcomings that are deemed to be a critical rating weakness, but only slowly in other cases where there are also other rating-critical factors at play. In some countries, given governance improvements are likely to filter into economic performance and sovereign debt dynamics quickly and tangibly, and in others less so, for example due to other, unresolved bottlenecks in institutions and the economy.

Particularly large deviations from the average effect of governance improvements on yields could be driven by differences in countries' initial conditions and discontinuities affecting countries' market access and costs. The analysis is based on estimated ratings and how these typically map to financing costs. But imagine a country which gains global capital market access for the first time, for example by acquiring a rating and issuing its first Eurobond. Making governance improvements as reflected by an improved CPIA score could be critical to achieving market access, which in turn can have a big impact on governments' financing possibilities and costs. In such cases, the stakes to achieve governance improvements could be much higher than those suggested by the average effects that have been our focus here. Similarly, countries may face important discontinuities, for example becoming included or excluded from widely tracked global bond indices because of crossing over the investment-/speculative-grade rating divide. As our sample consists only of countries for which CPIA scores are publicly available, it is also possible that different results would be obtained if it were possible to test the associations between CPIA scores and ratings for the total (non-truncated) population of all EMDE countries.⁴

Finally, global financial market conditions are fluid, resulting in variations over time in risk premia and hence in the payoff to countries from improvements that reduce their credit risk, as reflected in commercial risk ratings and in the credit spreads determined by the financial markets. The results reported on above are based on the differences in yields across ratings, as of late April 2019. In future, risk premia may widen (increasing the payoff for risky countries or reducing investor's risk perceptions), or compress (potentially reducing this payoff). Averaged across time, we can reasonably expect risk premia to be significant and hence to generate significant potential payoffs from measures which reduce country risk. However, the size of these payoffs will likely differ substantially at any point in time, which could affect governments' incentives to undertake the difficult task of improving governance to lower financing costs.

⁴ The 73 countries which had public CPIA scores as of the 2017 CPIA results are those which eligible to borrow from the International Development Association (IDA). This is our sample. By contrast, the CPIA scores of the 68 countries which are currently eligible to borrow from the International Bank for Reconstruction and Development (IBRD) are confidential.

This paper has used a novel approach – constructing estimated Moody’s ratings – to argue that in developing countries, governance improvements can lower governments’ external financing costs. This is not a surprising conclusion, given the links between sound policies and institutions and economic performance and development, and hence on credit ratings and market-determined government debt risk premia. Data limitations preclude making precise statements about *which* governance improvements can deliver the largest reduction in financing costs. Even the average effects we report, to provide a sense of the plausible impact of significant improvements that move CPIA scores, should be understood merely as indicative point estimates surrounded by a sizable confidence band. While clearly a limitation in terms of the statistical power we achieve with this approach, this research outcome is also intuitive: country circumstances vary widely, so there will be large, idiosyncratic differences in which breakthroughs in policies and institutions will be more fruitful – to support sustainable development in general and to lower market financing costs to government in particular.

Despite their imprecision, our results do have practical implications. For policymakers, they mean that tackling governance weaknesses can deliver immediate and tangible gains to the government bottom line. There could be quick wins, where policymakers are able to identify reforms, or strengthen implementation of existing policy and institutional frameworks, which deliver ratings and risk spread improvements. Ultimately, the benefit of making such improvements is of course probably less about the direct impact on financing costs than their potential power to drive economic development. Still, reducing financing costs constitutes a highly visible, tangible and near-term benefit, a reward which could strengthen policymakers’ incentives to make the required effort, including spending political capital on difficult reforms. For some countries, working towards achieving a better credit rating, or indeed acquiring a rating and external financial market access for the first time, could thus be a useful focal point for policy. To be useful, a policy target needs to be something visible, and over which the policymaker has a reasonable degree of control, criteria which are substantially met by sovereign credit ratings. Where appropriate given country circumstances, this could be complemented using estimated ratings, as used in this paper, to identify areas for policy action based on a high likelihood that the rating will be sensitive to improvements. Alternatively, rigorously-determined country risk ratings could be developed and publicly disclosed by international financial institutions as a global public good, to open opportunities for improvement in rating-sensitive areas to be publicized more readily and in a timely way, when this is suited to country circumstances.⁵

⁵ For recent research and a suggestion along these lines, see <http://blogs.worldbank.org/developmenttalk/node/1367> and references therein.

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