Sub-Saharan sovereign Eurobond yields: What really matters beyond global factors?

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Abstract

This study scrutinizes the drivers of secondary market yields on sovereign Eurobonds issued by Sub-Saharan African (SSA) countries. Unlike Gevorkyan and Kvangraven (2016), we find a dominance of country-specific factors over both global and bond-specific factors in the explanation of SSA Eurobond yields performance. Our results also indicate that global and country-specific factors have heterogeneous impacts in the short run and that, in the long run, yields are affected by government debt levels, economic growth and exchange rate depreciation in addition to the global factors. On bond-specific characteristics, we find that issues of investment grade ratings with size between 500 million and 1.2 billion US$ and less than 10 year maturities enjoy generous yields than the ones with different characteristics. These results suggest that SSA countries have the possibility to influence the performance of their sovereign bonds on secondary markets.

Keywords: Sub-Saharan Africa, Sovereign bonds, Bond Yields, Financial Markets

1 Introduction

SSA economic growth in the recent past has been accompanied with what seems to be a revolutionary way of financing development in this region. From 2006 to date, SSA countries have been issuing Eurobonds one after the other in what Willem te Velde (2014) calls a "beauty contest". Many were surprised by the enthusiasm of international investors for this particular securities despite the history of defaults and overindebtedness in this region. Needless to recall that just not more than two decades ago, SSA was totally mired in an unsustainable debt spiral that hindered its economic growth and challenged the attainment of the MDGs. For many years after the 1980s' debt crisis, a good number of these countries have relied on foreign aid, debt forgiveness and/or access to concessional loans from multilateral institutions like the IMF and the World Bank to satisfy the basic needs of their citizens.

Taking this recent past into perspective, the issuance of SSA sovereign Eurobond has been viewed with a mixed feeling by some who do not believe in the sustainability of this funding mechanism in the medium-to-long run. Sy (2013) argues for instance that African Eurobonds would lose appeal

when global interest rates increase and concerns about the global financial crisis abate. Willem te Velde (2014) warns about implementation risks, debt sustainability risks, roll-over risks, exchange-rate risks, currency mismatch risks, and even macroeconomic risks that would accompany the issue of Eurobonds by SSA governments. However, beyond these considerations lies an important question of whether this resort to international markets can provide additional incentives for these countries to embrace better macroeconomic management and generate sustainable growth and prosperity. The rationale behind this thinking is the *market discipline* hypothesis which assumes that international credit markets are capable of disciplining sovereign borrowers in their macroeconomic management exercise (see Bayoumi et al., 1995; Manganelli and Wolswijk, 2007; Kula, 2004).

The investigation on the plausibility of the market discipline is of great importance in the case of SSA Eurobonds for many reasons. First, these countries have just recovered from a long history of over-indebtedness and poor macroeconomic performance thanks to dedicated interventions by the World Bank and/or the International Monetary Fund (IMF). Therefore, it is much desirable that markets signals provide strong incentives for these countries to adopt better macroeconomic management practices that would avoid the recurrence of debt crises. Second, the resort to international markets has been justified by the need for these countries to expedite their development agenda by improving infrastructure, and creating enabling conditions for investment and sustainable economic growth. However, it has also been argued that this move is explained by global factors affecting the markets (push factors) rather than by attractive and investment-friendly conditions in the issuing countries (pull factors). If this proves true then these countries have little room to stimulate the appetite of international investors in their bonds, which would challenge the reliability of international markets as a source of development funding. Moreover, a disconnection between the SSA Eurobond prices and the borrowers' macroeconomic fundamentals could revive the memories of the debt crisis of the 1980s that followed reckless lending behavior by international investors (mainly through syndicated bank loans) obsessed by the need to recycle the increasing Eurodollar funds supplied by oil-exporting countries in the 1970s (see FDIC, 1997, chap. 5).

Many studies have focused on the determinants of corporate and sovereign bond yields and/or bond spreads of developed and emerging economies (see Maltritz et al., 2012; Maltritz and Molchanov, 2013, 2014; Genberg and Sulstarova, 2004; Jaramillo and Tejada, 2011). A few of them have integrated some SSA countries in their samples either as J.P. Morgan Emerging Market Bond Index Global (EMBI Global) constituents or for sake of comparison (see Presbitero et al., 2016; Gueye and Sy, 2010). One exception the work by Gevorkyan and Kvangraven (2016) which zooms on SSA sovereign yields by specifically considering nine SSA economies (Congo Republic, Cote d'Ivoire, Gabon, Ghana, Namibia, Nigeria, Rwanda, Senegal, and Rwanda) for the period of December 2007 and February 2014. Our work complements this study by adding Angola, Cameroon, Ethiopia, Kenya, Mozambique and Tanzania, and by extending the time span until August 2016. Besides dissecting the short and long-term impact of global and country-specific factors on these yields, we have considered the case of multiple issues by some of these countries and the impact of bond-specific factors. To our best knowledge, this is the first attempt to investigate the impact of bond-specific factors on secondary market yields of SSA sovereign Eurobonds.

2 Literature review

The existing literature provides the rationale for the choice of global and fundamental factors to be considered in the analysis of determinants of emerging and developing sovereign bond yields. For

instance, Hong-Ghi et al. (2003) distinguish three categories of variables in their study on emerging market Eurobond spreads, namely liquidity and solvency variables, macroeconomic fundamentals, and external shocks. The group in the first category variables that can increase the likelihood of short-term liquidity and/or solvency problems like exports, imports, ratios of debt and foreign reserves over GDP, GDP growth, current account balance to GDP, and the debt service to export (debtservice ratio). Variables that might have an impact on the long-term insolvency like inflation (taken as an indicator of the quality of macroeconomic management), the terms of trade, and the real exchange rate compose the second category while the 3-month U.S. Treasury bill rates and the real oil price are considered as external shocks. Their results indicate that taken together liquidity and solvency variables, as well as the fundamentals, explained most of the spread variations in the 11 emerging economies under consideration during the 1990s. Changes in the U.S. interest rate appeared to be the significant shock affecting spreads in emerging economies. Quite a similar categorization has been used by different authors and their results converge to the importance of some or all of these variables in the determination of emerging and developing bond yields and/or spreads (see Haque et al., 1996; Jahjah et al., 2013; Maltritz et al., 2012; Maltritz and Molchanov, 2013, 2014; Genberg and Sulstarova, 2004; Jaramillo and Tejada, 2011).

The literature elaborates also on the factors affecting capital flows between advanced and emerging economies. After the Lucas paradox being empirically invalidated in recent studies (see Reinhardt et al., 2013), authors agree that these flows are mainly driven by *push* factors that emanate from the lending countries and *pull* factors that originate from the borrowing countries (see Suttle et al., 2013; Gueye and Sy, 2010; Fratzscher, 2011). A simple but intuitive description of these factors is provided by Suttle et al. (2013) who cite very easy monetary policy and the prospect of poor returns in advanced economies, and higher growth and interest rates in emerging economies as respectively push and pull factors determining the flow of capital between these economies. A more comprehensive view on these factors takes an international diversification perspective by considering common shocks as push factors, and country-specific or idiosyncratic determinants as pull factors. Fratzscher (2011) adopts this view in his analysis on the drivers of capital flows from 2005 to 2010. He argues that push factors were the important drivers of net capital flows in 2005-2007 and during the 2007-2008 financial crisis, while pull factors dominate in explaining the flow of capital to emerging economies in the recovery period since March 2009. The same view is also considered by Gueye and Sy (2010) who estimate the cost of borrowing by African countries from prevailing global push factors and country-specific pull factors.

Studies on the determinants of emerging and developing bond yields and/or spreads have referred to one or the other categorization as a general framework for their analysis. Interestingly, this framework allows to test the market discipline hypothesis since the significance of economic fundamentals (pull factors) might rightfully be interpreted as the ability of the market to react to countries' economic performance. Interesting results have been found by Bellas et al. (2010) and Dailami et al. (2008) among others. Bellas et al. (2010) have found that fundamentals (macroeconomic) factors influence emerging market bond spreads in the long run while financial market volatility is only important in the short run using data on 14 EMBI constituents from 1997 to 2009. Dailami et al. (2008) have considered 17 EMBI countries from 1991 to 2004 and their results indicate a significant but non-linear impact of US interest rate policy on emerging market bond spreads depending on countries' debt levels, stressing that moderate debtors suffer less from an increase in US interest rates.

Another angle of research in the literature has been the impact of lead managers on bond yields. Daniels and Vijayakumar (2006) analyze municipal issues in the US for the period of 19901999 and find that the reputation of the lead manager affect significantly these bonds' yields. Their results support the view that reputation reduces information asymmetries among stakeholders on the municipal bond market. Further research by Butler (2008) found that this impact of lead managers on yields is in turn affected by their physical distance to the borrower. His results suggest that lead managers with local presence are in a better position to assess detailed information and can therefore place high-risk and unrated bonds that would otherwise been difficult to evaluate by the market.

The recent move of SSA countries into international markets has caught the interest of researchers. Some of them have elaborated on the issue of sustainability while others have looked at the performance of SSA Eurobond on these markets by investigating the drivers of these assets' yields as part of a larger sample of emerging and developing countries. Sy (2013) believes that the record-low interest rates in the United States and other safe heavens is the main push motive for the purchase of sub-Saharan Eurobonds. On the pull side, he cites current and promising GDP growth supported by stronger policy frameworks, improved governance, favorable commodity prices, and sharply reduced debt burdens. However, this author draws a pessimist picture of the sustainability of the sub-Saharan Eurobonds as, according to him, none of these push or pull factors are expected to continue in the mid to longer term. He stresses for instance that the low interest rates prevailing in the United States are likely to change in the medium term, inferring that the appetite for sub-Saharan Eurobonds would then dwindle. Presbitero et al. (2016) analyze the drivers of probability of international sovereign bond issuance and bond spreads at issue using a sample of 105 emerging and developing countries including SSA countries. Their results confirm that, on the global (pull) factors, global liquidity and high commodity prices increase the likelihood of sovereign bond issues (especially for SSA countries), and that spreads are affected by market volatility. On the pull side, they find that the likelihood of issuing bonds increases with the size of the economy, GDP per capita, the degree of government effectiveness, and lower public debt levels. Like in other studies, they find that spreads are influenced by countries' external and fiscal positions, economic growth, and government effectiveness. Quite similar results have been found by Gueye and Sy (2010) in their estimation the costs of international borrowing costs by African SSA economies using push and pull factors.

The work by Gevorkyan and Kvangraven (2016) is to our knowledge the first to focus solely on the determinants of SSA sovereign Eurobonds' yields on secondary markets. The results of their study on nine SSA economies (Congo Republic, Cote d'Ivoire, Gabon, Ghana, Namibia, Nigeria, Rwanda, Senegal, and Rwanda) for the period of December 2007 and February 2014 indicate that, besides foreign exchange reserves, SSA sovereign bond yields are mainly influenced by global volatility, commodity prices and global liquidity, all global (push) factors that lie beyond the control of these countries. Despite the appeal of these results, we believe that a deeper analysis is required to test the market discipline hypothesis in the particular case of SSA. Moreover, the additional role of bond-specific characteristics has not yet been assessed in the case of SSA Eurobonds. These assets have been placed by a (an association of) renowned investment bank(s). Three names have appeared repeatedly in these deals, namely Barclays Bank, Deutsche Bank and Standard Bank. Other banks seem to have intervened rather occasionally. The fact that Standard Bank could be perceived to have a locational advantage over its peers as an African bank provides an opportunity to test whether the results of Butler (2008) and Daniels and Vijayakumar (2006) can be confirmed in the SSA context. To our knowledge, no study has taken this aspect into consideration yet.

Our analysis tries to fill these gaps and complement the work of Gevorkyan and Kvangraven (2016) by extending the universe of SSA sovereign bonds to more countries and more than one bond issue per country when available. Along with this extension, we increase the number of fundamentals to be considered and distinguish between short and long run dynamics in the impact of the global and country-specific factors on bond yields. We also carry out an analysis at the individual bond level to assess the significance of bond-specific characteristics like maturity, rating at issue or issue size, and the identity of the lead manager in the determination of yields.

3 Methodological framework

Our analysis follows a similar approach as in Gevorkyan and Kvangraven (2016), Kennedy and Palerm (2014), Dailami et al. (2008), and Bellas et al. (2010). We specify two equations to assess respectively the plausibility of the market discipline hypothesis and the impact of bond-specific characteristics on SSA sovereign yields. More specifically, we wanted to assess through the first equation the reaction of yields to changes in our variables of interest, namely public debt level, the fiscal balance and inflation (taken as an indicator of the quality of countries' macroeconomic management). In order to test the market discipline hypothesis, we check whether these variables prove significant after controlling for the effect of global factors itemized in the literature above. The second equation was meant to judge the reaction of markets to bond specific characteristics and the significance of this additional information after controlling for the global and country-specific factors. We were interested in testing whether the ratings, bond size, the stated use of proceeds matter, and whether Standard Bank has an advantage over other lead managers in the influence on the SSA sovereign bond yields.

3.1 Model specification

The following general model has been specified to explore the determinants of SSA sovereign Eurobond yields on the secondary market :

$$\mathrm{y}_{i,t} = \alpha + \Gamma_i^{'}\mathrm{GF}_t + \Theta_i^{'}\mathrm{CS}_{i,t} + \varepsilon_{i,t} \tag{1}$$

$$\mathrm{y}_{i,t} = \beta + \Lambda_i^{'}\mathrm{GF}_t + \Omega_i^{'}\mathrm{CS}_{i,t} + \Phi_i^{'}\mathrm{BS}_{i,t} + \varepsilon_{i,t} \tag{2}$$

where $\mathrm{y}_{i,t}$, GF_t, $\mathrm{CS}_{i,t}$, and $\mathrm{BS}_{i,t}$ represent respectively a set of SSA sovereign Eurobond yields, the global, country-specific and bond-specific factors affecting market yields, and $\varepsilon_{i,t}$ an i.i.d. error term.

Our global factor set is made of the Bloomberg commodity index (BloInd), the VIX index, and the 10 year US Treasury bond (US10). On the countries' fundamentals side, we have considered foreign reserves to GDP (Res2GDP), government debt to gdp (D2GDP), current account balance over gdp (CAB2GDP), percentage changes in exchange rates (FxRate), gdp growth, and inflation. As for the bond-specifics, we have taken into account the rating, rank (indicating a debut or not), size, and original maturity of the issue, as well as the stated use of proceeds and identity of the lead manager.

The full models to be estimated are therefore given by:

$$\begin{aligned}\mathrm{y}_{i,t} = \alpha_0 &+ \alpha_1\mathrm{BloInd}_t + \alpha_2\mathrm{VIX}_t + \alpha_3\mathrm{US10}_t + \alpha_4\mathrm{Res2GDP}_t + \alpha_5\mathrm{D2GDP}_{i,t} + \alpha_6\mathrm{Def2GDP}_{i,t} \\ &+ \alpha_7\mathrm{CAB}_{i,t} + \alpha_8\mathrm{FxRate}_{i,t} + \alpha_9\mathrm{GDPGrowth}_{i,t} + \alpha_{10}\mathrm{Inflation}_{i,t} + \varepsilon_{i,t}\end{aligned} \tag{3}$$

$$
\begin{aligned}
\mathrm{y}_{i,t} = \beta_0 &+ \beta_1 \mathrm{BloInd}_t + \beta_2 \mathrm{VIX}_t + \beta_3 \mathrm{US10}_t + \beta_4 \mathrm{Res2GDP}_t + \beta_5 \mathrm{D2GDP}_{i,t} + \beta_6 \mathrm{Def2GDP}_{i,t} \\
&+ \beta_7 \mathrm{CAB}_{i,t} + \beta_8 \mathrm{FxRate}_{i,t} + \beta_9 \mathrm{GDPGrowth}_{i,t} + \beta_{10} \mathrm{Inflation}_{i,t} + \beta_{11} \mathrm{InvestProfile}_{i,t} \\
&+ \beta_{12} \mathrm{Debut}_{i,t} + \beta_{13} \mathrm{BondSize}_{i,t} + \beta_{14} \mathrm{Maturity}_{i,t} + \beta_{15} \mathrm{UseOfProceeds}_{i,t} \\
&+ \beta_{16} \mathrm{LeadManager}_t + \varepsilon_{i,t}
\end{aligned} \tag{4}
$$

The ratings at issue of the bonds have been grouped into categories related to their implied investment profiles (InvestProfile). Four categories have been generated, i.e. from not rated, highly speculative, non-investment, and lower medium (with not rated taken as the baseline). We have considered this general categorization on the belief that its not likely to drastically change during our period of study. In other words, we expect the possible changes in ratings and outlook to remain modest so that bond do not move from one category to another in this period. The rank of the issue (Debut) is a dummy taking value 1 in the case of the first bond issue by the country and 0 otherwise. The issue size has also been categorized to distinguish among issues of less than 500 million US dollars, issues between 500 and less than 1 billion US dollars, those between 1 billion and less than 1.2 billion, and those beyond 1.2 billion US dollars (with the first category as reference). As for the maturity, we have considered three categories, i.e. less than 10 years, 10 years, and more than 10 years (with the first category as baseline). The use of proceeds considers whether the issue is meant for financing infrastructure projects. We generated an Infrastructure dummy that takes value 1 whenever there is an infrastructure component in the use of proceeds as stated in the issue prospectus and 0 otherwise.

SSA Eurobond issues have benefited from the services of renowned lead managers to access international markets. Some names have been appearing recurrently while others seem to have occasionally participated in this endeavor. Since most of these issues had more than one lead manager, we generate separate dummies for each of the most common lead managers (Barclays Bank, Deutsche Bank, and Standard Bank) . We generate an additional dummy taking value 1 when other banks have intervened in the issue. By doing so, we are able to grasp the joint effect of two or more underwriters.

3.2 Estimation techniques

Equation (3) is estimated to assess the marginal impact of country-specific factors on SSA Eurobond yields dynamics. First, we estimate simple pooled OLS (OLS), fixed (FE) and random (RE) effect models. We then use Mean Group (MG) estimation which averages individual group coefficients (see Pesaran et al., 1999) in order to adjust for cross-sectional dependence. Despite their simplicity and straightforward interpretation, these estimators have the caveat of not grasping the dynamics that lead to the produced long-run relationships between the yields and the selected explanatory variables. One way to address this limitation is to estimate a dynamic fixed effect model (DFE) that takes into account short and long-run dynamics separately. The issue with the DFE is that beyond assuming independence among entities, it also impose commonality in the both the short and long-run parameters. We then proceed as in Bellas et al. (2010) with the Pooled Mean Group estimation (PMG) which assumes commonality in the long-run parameters but allows country-variations in the short-run parameters. This estimator is also credited for many desirable properties of which the ability to address cross-sectional dependence, to control for possible cointegration among variables, and to ensure a superior forecasting performance (see Bellas et al., 2010; Pesaran et al., 1999; Baltagi and Griffin, 1997).

With equation (4), we assess the marginal impact of bond-specific factors on yields. Unlike the previous equation, the sample has been extended by allowing for multiple bonds per country when available, and the inclusion of recent bond issues that were excluded from the previous sample. As mentioned above, bond-specific factors are either time-invariant categorical or dummy variables, which leaves us with no choice but to use different variants of OLS estimations by trying as much as possible to control for country differences. A dominance analysis (see Azen and Budescu, 2003) is performed to assess the respective importance of our exogenous variables in the explanation of SSA sovereign bond yields.

3.3 Data

Fourteen countries have been considered for our analysis of the secondary market SSA sovereign and government-backed Eurobond yields: Angola, Cameroon, Cote d'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Tanzania, and Zambia. The following bonds have been considered: The government-backed Angola Northern Light III BV issued in 2012, the Angolan government Eurobond issue of 2015, the government Eurobond of Cameroon issued in 2015, Cote d'Ivoire Eurobonds of 2014 and 2015, the Ethiopian government Eurobond of 2015, the Gabonese Eurobonds of 2007, 2013 and 2015, the Ghanaian government bonds of 2007, 2013, 2014 and 2015, the two simultaneaous 2014 sovereign issues by Kenya for 2019 and 2024 maturity respectively, the Ematum issued by Mozambique in 2013, the Mozambican government Eurobond of 2016, the Namibian government Eurobonds of 2011 and 2015, the Nigerian government Eurobond of 2011, the two Nigerian government Eurobond of 2013 with 2018 and 2023 maturities, the Rwandan Eurobond of 2013, the Senegalese government Eurobonds of 2011 and 2014, the Tanzanian government Eurobond of 2013, and the three Zambian sovereign Eurobonds of 2012, 2014 and 2015.

Our panel is made of monthly data from November 2007 to August 2016 collected from Datastream. This dataset is unbalanced because of the difference in the timing of issue by these borrowers. Macroeconomic data such as GDP, Consumer price index, balance of payment or foreign reserves have been collected at their highest available frequencies and interpolation to monthly frequency was made when necessary. Forecasts from the IMF databases have been considered for 2016 macroeconomic data when available. Summary statistics and correlations are presented in Table1 and Table2 respectively while Figure1 provides insights on the dispersion of these respective yields around their means.

Variable	Obs	Mean	Std. Dev.	Min	Max
SSA Eurobond yields (Yield)	1020	0.0732	0.0259	0.0320	0.2251
Bloomberg commodity index (BloInd)	1020	353.4507	61.4903	235.5900	509.1333
VIX volatility index (VIX)	1020	0.1848	0.0438	0.1305	0.5629
US 10 year Treasury bond yields (US10)	991	0.0223	0.0048	0.0150	0.0415
Current account balance over GDP (CAB2GDP)	1020	-0.0532	0.0981	-0.4424	0.2049
Foreign reserves over GDP (Res2GDP)	887	0.1275	0.0459	-0.0013	0.3083
Government debt over GDP (D2GDP)	1020	0.3943	0.1849	0.0963	0.8638
GDP growth (GDPGrowth)	1020	-0.0005	0.0100	-0.0223	0.0216
Changes in foreign exchange rate (FxRate)	898	0.0112	0.0466	-0.2242	0.3621
Inflation	972	0.0068	0.0082	-0.0201	0.0498
Log yields (lYield)	1020	-2.6678	0.3162	-3.4420	-1.4913
Log Boomberg commodity index (lBloInd)	1020	5.8527	0.1731	5.4620	6.2327
Lox VIX index (lVIX)	1020	-1.7092	0.1939	-2.0363	-0.5747
Log Treasury yields (lUS10)	991	-3.8241	0.2075	-4.1997	-3.1821

Table 1: Summary statistics

	lYield	lBloInd	lVIX	lUS10	CAB2GDP	Res2GDP	D2GDP	Def2GDP	GDPGrowth	FxRate	Inflation
lYield	1.0000										
lBloInd	-0.4862*	1.0000									
lVIX	0.3798*	-0.1166*	1.0000								
lUS10	0.0894*	0.2486*	0.0915*	1.0000							
CAB2GDP	-0.4388*	0.2736*	0.1107*	0.0787*	1.0000						
Res2GDP	-0.1163*	0.0628	-0.1541*	-0.1014*	-0.0038	1.0000					
D2GDP	0.4188*	-0.3824*	-0.1104*	-0.1918*	-0.6167*	0.3021*	1.0000				
Def2GDP	-0.3143*	0.1081*	0.0581	0.0424	0.6686*	0.1864*	-0.4344*	1.0000			
GDPGrowth	-0.2308*	0.5005*	0.1456*	0.2579*	0.1869*	-0.0884*	-0.3774*	0.1040*	1.0000		
FxRate	0.0848*	-0.0752	-0.0205	-0.0326	-0.0980*	-0.0239	0.0718	-0.1227*	-0.1216*	1.0000	
Inflation	0.3533*	-0.2184*	0.1090*	-0.0175	-0.1255*	0.0057	0.1968*	-0.1867*	-0.2120*	0.0745	1.0000

Table 2: Correlations

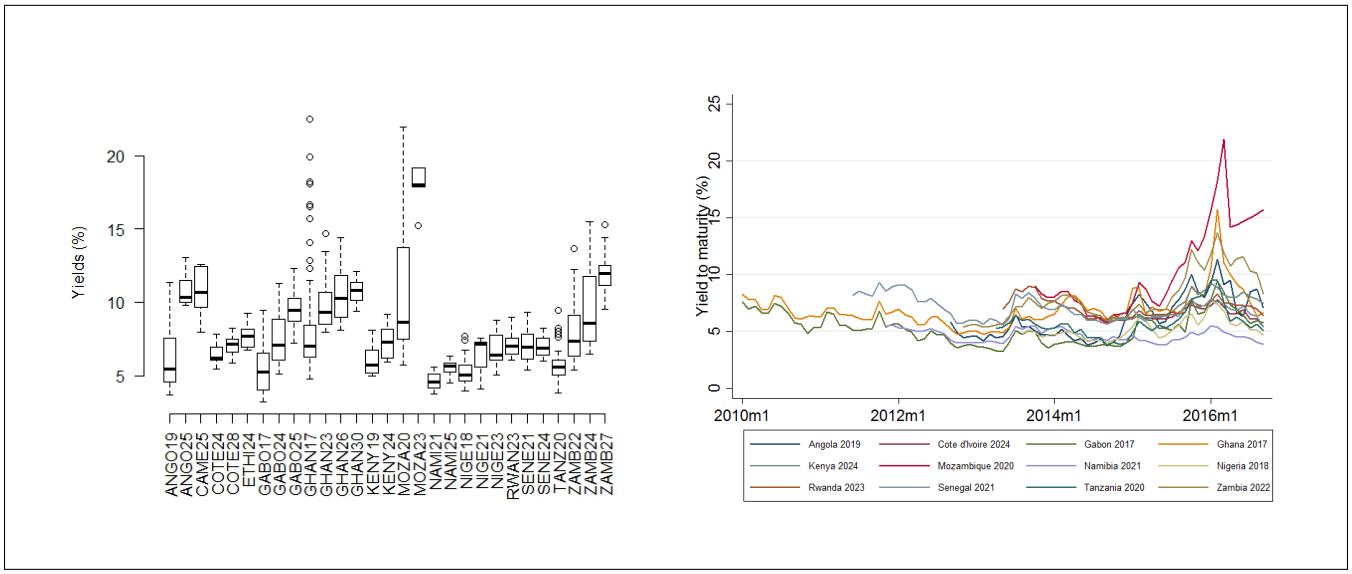

Figure 1: SSA sovereign Eurobond yields

4 Empirical results and interpretation

Noting strong correlations between the yields and our selected explanatory variables, we are interested in the extent to which these latter influence changes in the yields, everything remaining equal elsewhere. In this endeavor, we started by checking the stationarity of our series before embarking into the estimation of our models. The results in Table3 indicate the presence of unit root in all panels (in levels and logarithms) for some variables at 5% significance level. The hypothesis of a unit roots is rejected for all our variables after first difference transformation (results not reported).

In order to estimate equation (3), we selected one bond per country to focus on the influence of country-specific factors on the yields. In this way, we exclude the effect of bond-specific characteristics that might interfere in the case of multiple-bond issuers and focus on the impact of country-specific factors to test the market discipline hypothesis in the case of SSA economies. Recent issues have been discarded to allow sufficient observations per country for a acceptable fit of the selected estimators. The following 12 countries (and bond in parathesis) have been considered in this part of the analysis: Angola (Angola Northern Light III BV of 2012), Cote d'Ivoire (government Eurobond of 2014), Gabon (government Eurobond of 2007), Ghana (government Eurobond of 2007), Kenya (government Eurobond of 2014 with 2024 maturity), Mozambique (Ematum of

2013), Namibia (government Eurobond of 2011), Nigeria (government Eurobond of 2011), Rwanda (government Eurobond of 2013), Senegal (government Eurobond of 2011), Tanzania (government Eurobond of 2013), and Zambia (government Eurobond of 2012).

Variable	Im-Pesaran-Shin	Fisher-type
SSA Eurobond yields (Yield)	0.1360	0.8106
Bloomberg commodity index (BloInd)	0.7882	0.9353
VIX volatility index (VIX)	0.0000	0.0000
US 10 year Treasury bond yields (US10)	0.7004	0.9132
Current account balance over GDP (CAB2GDP)	0.1380	0.9986
Foreign reserves over GDP (Res2GDP)	0.0046	0.2848
Government debt over GDP (D2GDP)	0.9486	0.9998
Government budget deficit/surplus (Def2GDP)	0.0036	0.1301
GDP growth (GDPGrowth)	0.5467	0.6208
Changes in foreign exchange rate (FxRate)	0.0000	0.0000
Inflation	0.0000	0.0000
Log yields (lYield)	0.2838	0.8532
Log Boomberg commodity index (lBloInd)	0.8778	0.9364
Lox VIX index (lVIX)	0.0000	0.0000
Log Treasury yields (lUS10)	0.8824	0.9887

H0: All panels contain a unit root vs H1: Some panels are stationary

Table 3: Panel unit root tests (p-values reported)

The results of the static estimation of Equation (3) are presented in Table4. The presence of panel effect is confirmed by the Breusch and Pagan Lagrangian multiplier (LM) test. The Hausman test rejects the null hypothesis of non-systematic differences between the fixed-effect (FE) and random effect (RE) coefficients, which makes the FE estimation our preferred e choice for this equation. However, the results of the Frees and Perazan's tests indicate a strong cross-sectional dependence within the panel which legitimates the resort to the Pesaran and Smith Mean Group (MG) estimation. These results provide already some insights on the influence of Inflation and Public Debt (D2GDP) on SSA sovereign bond yields besides the global factors (BloInd, VIX and US10).

The results of the dynamic estimation of Equation (3) are presented in Table5. As mentioned earlier, the DFE estimation imposes common coefficients across all entities in both the short and long run. These results evidence the limitation of such a restriction on the analysis of bond yields dynamics in a panel of countries with sound structure heterogeneity. Moreover, there is no evidence that this method address the issue of cross-sectional dependence either. By correcting for this weakness, the PMG provides insights on how secondary market yields of SSA sovereign Eurobonds react to changes in push and pull factors in the short run, and how these changes compound in the long run. Our interpretation is therefore concentrated on the results of the PMG estimation.

To start with, these results indicate an significant long run relationship between SSA sovereign bond yields and governments' debt levels, GDP growth, changes in foreign exchange rates, and -to some extent inflation and government deficit- in addition to the already known significant influence of the global factors. This is more or less consistent with the results of the static estimation that identified debt levels, government deficit, inflation and current account balances as significant factors affecting the evolution of SSA sovereign bond yields on secondary market.

As expected, these results indicate cross-country differences in short-term influence of the selected

	OLS	RE	FE	MG
lBloInd	-0.486**	-0.393***	-0.378**	-0.585***
	(0.167)	(0.133)	(0.126)	(0.152)
lVIX	0.504***	0.593***	0.604***	0.329***
	(0.086)	(0.052)	(0.046)	(0.072)
lUS10	0.273***	0.331***	0.338***	0.316***
	(0.071)	(0.040)	(0.039)	(0.070)
CAB2GDP	-0.744	-0.834***	-0.794*	0.679
	(0.434)	(0.307)	(0.434)	(1.273)
Res2GDP	-0.429	-0.604	-0.635	-1.603
	(0.397)	(0.590)	(0.875)	(1.146)
D2GDP	0.342	0.476**	0.492**	0.131
	(0.351)	(0.190)	(0.194)	(0.510)
Def2GDP	0.036	1.496*	1.726*	1.670
	(1.369)	(0.869)	(0.789)	(1.182)
GDPGrowth	-1.842	-2.191	-2.383	0.893
	(1.585)	(1.440)	(1.554)	(2.263)
FxRate	-0.064	0.065	0.076	0.014
	(0.236)	(0.228)	(0.225)	(0.180)
Inflation	6.606**	5.931***	5.766***	2.944*
	(2.178)	(1.448)	(1.653)	(1.759)
Constant	1.873*	1.713**	1.653**	3.311***
	(0.902)	(0.714)	(0.701)	(0.757)
R^2	0.60	0.58	0.64	
LM		1854.87***		
Hausman		41.68***		
Frees		2.489***	2.545***	
Pesaran		16.209***	16.456***	
# observations	574	574	574	574

***, **, and * : significant at 1%, 5%, and 10% respectively
(.) : standard error

Table 4: Static estimation of equation (3)

explanatory variables on bond yields. The first message is that not all SSA sovereign bond yields are affected by all of the global factors, and to the same extent. For instance, of the 12 selected countries, only Angola, Ghana, and Tanzania yields seem to be significantly affected by changes in commodity prices in the short-run unlike our expectation that this should be the case for all the major commodity-exporters like Cote d'Ivoire, Gabon or Nigeria. Another puzzling result is the significant and negative short-term reaction of Kenya and Nigeria's secondary market yields on market volatility. Although this might seem counter-intuitive, we believe that this move might be justified by the quest for diversification by international investors in response to global market uncertainty. This very explanation holds in our view for the negative reaction of Cote d'Ivoire, Ghana, and Kenya' yields to changes in 10-year US Treasury yields. It is logical to believe that rising US yields push investors to shift to alternative assets (in this case Cote d'Ivoire, Ghana and Kenya) in the short-run while the protraction of this situation might push them out of the bond market altogether, which justifies the positive relationship in the long-run. Also interesting is the positive relationship between the current account deficit and bond yields in Nigeria and to some extent Kenya. Our claim is that these countries have benefited from huge foreign investment inflows in recent years which might justify on one hand the deficit and on the other hand better economic prospects, the total effect being both a worsening of the current account balance and a drop in bond yields. We do not find an explanation to the positive relationship between changes in foreign reserves and Angolan yields while this relation is significantly negative for Cote d'Ivoire, Gabon, Ghana and Nigeria. Debt levels seem to only affect Senegalese yields in the short-run. Changes in government budget balance seem to influence yields in Namibia and Nigeria. Economic growth

and inflation are also important for Kenya's yields. The negative relationship between exchange rate depreciation and Angola, Gabon and Kenya's yields can be attributable its short-run positive effect on the trade balance that might affect the aggregate demand and hence economic activity in the short-run. Inflation is positive and significant for Kenya and Zambia's yields.

These results prove the relative importance of pull factors in the explanation of short and long run dynamics of SSA sovereign Eurobond yields. It is clear that, although their importance and magnitudes vary per country, all of these variables significantly affect SSA secondary market yields either in the short or long run. Noteworthy is also the finding that not all SSA yields are affected by global factors in the short run, and that some countries seem to benefit from a temporary advantage during worsening conditions on global markets. This is the case of Cote d'Ivoire, Ghana and Kenya that experience on their advantage a substitution effect when US Treasuries yields shoot up. The same holds for Nigeria in times of market uncertainty. Overall, we conclude that in addition to global factors, SSA sovereign bond yields rise with countries' debt levels and exchange rate depreciation, and decline with economic growth. This observation implies that markets rewards sovereign borrowers with low debt levels, sound growth prospects and better foreign exchange management, which is to some extent consistent with the market discipline hypothesis.

	Pooled Mean Group														Dynamic Fixed-Effect	
	Short-term dynamics															
	Angola	Cote d'Ivoire	Gabon	Ghana	Kenya	Mozambique	Namibia	Nigeria	Rwanda	Senegal	Tanzania	Zambia	Average	Long-Term	Short-Term	Long-Term
lBloInd	-1.120***	0.028	-0.391	-0.456***	-0.064	-0.124	-0.214	-0.113	-0.312	-0.320	-0.839**	-0.160	-0.340***	-0.518***	-0.486***	-0.335**
	(0.339)	(0.186)	(0.309)	(0.177)	(0.218)	(0.589)	(0.229)	(0.684)	(0.252)	(0.229)	(0.366)	(0.266)	(0.097)	(0.109)	(0.105)	(0.144)
lVIX	0.242**	-0.035	-0.029	0.084	-0.151**	0.060	0.113*	-0.432**	0.079	0.126**	0.092	0.147	0.025	0.649***	0.031	0.796***
	(0.104)	(0.053)	(0.091)	(0.081)	(0.064)	(0.162)	(0.065)	(0.202)	(0.061)	(0.057)	(0.113)	(0.092)	(0.051)	(0.082)	(0.035)	(0.092)
lUS10	0.383**	-0.381***	-0.090	-0.328***	-0.388***	-0.069	0.161	-0.278	0.253*	0.034	0.124	-0.071	-0.054	0.398***	-0.078	0.407***
	(0.185)	(0.129)	(0.158)	(0.115)	(0.131)	(0.373)	(0.123)	(0.311)	(0.135)	(0.115)	(0.196)	(0.136)	(0.074)	(0.067)	(0.059)	(0.082)
CAB2GDP	0.551	2.861	-0.848	-0.119	2.558*	-0.333	-1.665**	11.254**	0.279	0.213	7.240	0.729	1.893*	-0.969	0.001	-0.921
	(2.654)	(6.807)	(0.618)	(1.012)	(1.346)	(1.389)	(0.666)	(5.316)	(0.638)	(1.094)	(12.712)	(1.466)	(1.084)	(0.658)	(0.279)	(0.654)
Res2GDP	4.071***	-1.109*	-2.133*	-1.563*	-1.586	-1.534	0.729	-11.620*	-2.020	0.009	5.575	1.011	-0.849	-0.367	0.005	-0.875
	(1.237)	(0.578)	(1.139)	(0.811)	(1.693)	(2.833)	(0.545)	(6.797)	(1.294)	(0.729)	(5.417)	(0.795)	(1.208)	(0.693)	(0.369)	(0.862)
D2GDP	-0.457	1.165	-0.529	-0.278	0.137	0.344	-0.139	3.287	-0.077	0.746*	-0.072	0.136	0.355	0.510**	0.110	0.898***
	(1.237)	(2.044)	(0.686)	(0.305)	(0.416)	(0.394)	(0.944)	(38.020)	(0.530)	(0.428)	(2.797)	(0.258)	(0.301)	(0.234)	(0.151)	(0.299)
Def2GDP	-2.485	-3.997	-0.149	-0.607	2.219	0.814	-1.946***	-10.529**	2.903	-3.038	6.642	-2.719	-1.075	1.522*	-0.561	1.621*
	(1.923)	(12.446)	(1.012)	(0.983)	(1.620)	(1.507)	(0.716)	(4.356)	(2.221)	(4.484)	(7.355)	(2.839)	(1.225)	(0.876)	(0.384)	(0.960)
GDPGrowth	-5.889	3.698*	1.452	1.354	8.573**	-2.453	-4.143	87.421	59.715	0.619	7.230	3.879	13.455	-4.129**	1.106	-2.128
	(4.955)	(2.103)	(1.906)	(1.923)	(4.245)	(9.207)	(4.740)	(180.909)	(72.767)	(2.916)	(6.178)	(3.645)	(8.372)	(1.819)	(1.189)	(2.137)
FxRate	-1.538***	-0.132	-0.628*	-0.335	-1.623***	-0.211	-0.335	-0.079	4.100	-0.30	0.593	0.016	-0.017	1.700**	-0.163	0.831
	(0.414)	(0.193)	(0.341)	(0.227)	(0.599)	(0.277)	(0.155)	(1.387)	(3.491)	(0.244)	(0.852)	(0.159)	(0.416)	(0.663)	(0.122)	(0.598)
Inflation	-6.165	-2.172*	0.119	-2.061	3.779**	-0.087	0.768	5.793	0.067	-0.711	5.944	5.039***	0.859	4.623*	-0.259	4.879*
	(5.059)	(1.185)	(0.933)	(2.020)	(1.606)	(3.246)	(2.505)	(3.683)	(0.984)	(1.281)	(4.517)	(1.850)	(1.058)	(2.678)	(0.709)	(2.837)
Constant	1.149***	0.976***	0.739***	0.926***	0.675***	0.772**	0.240*	2.186***	0.302*	0.327**	0.476**	0.294	0.806***		0.561**	
	(0.343)	(0.378)	(0.264)	(0.298)	(0.253)	(0.394)	(0.137)	(0.643)	(0.163)	(0.149)	(0.235)	(0.192)	(0.156)		(0.245)	
Error Correction (phi)	-0.431***	-0.352***	-0.285***	-0.349***	-0.243***	-0.287**	0.098*	-0.736***	-0.107**	-0.118**	-0.187**	-0.094	-0.274***		-0.304***	
	(0.089)	(0.104)	(0.079)	(0.074)	(0.068)	(0.131)	(0.051)	(0.143)	(0.053)	(0.049)	(0.076)	(0.061)	(0.053)		(0.029)	

Observations: 553
***, **, and * : significant at 1%, 5%, and 10% respectively
(.) : standard error

Table 5: Dynamic estimation of equation (3)

With the influence of push factors on SSA sovereign bond yields been highlighted in the estimation results of equation (3), it was important to move to the investigation of the impact of bond-specific characteristics as stipulated in equation (4). This setting proved appropriate to evaluate the marginal importance of global, country-specific, bond-specific, and time-specific effects in the explanation of SSA sovereign bond yields dynamics. The results of the dominance analysis (Azen and Budescu, 2003, see) presented in Table6 indicate that, taken together, country-specific factors (combination of fundamentals and other country fixed-effects) account for 32.23%, far ahead of global factors that are credited for 22.91%. This percentage increases to 34.99%(18.27% + 16.72%) after separating fundamentals from other country-specific factors as shown in Table7. This observation indicates that markets are able to price-in not only countries' fundamentals behaviors but also other countries' specific factors that are not itemized in our model. One might think of government effectiveness, political risk, and/or any other hidden factors that might affect countries creditworthiness. Besides providing additional support to the market discipline hypothesis in the case of SSA sovereign Eurobond, these results indicate an important share of bond-specific characteristics (23.55% and 21.82% in the two cases respectively) in the explanation of secondary market yields. They also indicate an important time-effect in these yields dynamics (20.70%).

lYield	Dominance Statistics	Standardized Domin. Stat.	Ranking
Set 1	0.2006	0.2291	3
Set 2	0.2822	0.3223	1
Set 3	0.2062	0.2355	2
Set 4	0.1866	0.2131	4
Overall fit stat :	0.8757		
# observations :	766		
Set 1 :	Global factors		
Set 2 :	Country-specific factors		
Set 3 :	Bond-specific factors		
Set 4 :	Panel time-effect (years)		

Table 6: Dominance analysis of equation (4): Global, country-specific, bond-specific, and time factors

lYield	Dominance Statistics	Standardized Domin. Stat.	Ranking
set1	0.1969	0.2249	1
set2	0.1600	0.1827	4
set3	0.1910	0.2182	2
set4	0.1465	0.1672	5
set5	0.1813	0.2070	3
Overall fit stat :	0.8757		
# observations :	766		
Set 1 :	Global factors		
Set 2 :	Country's fundamentals		
Set 3 :	Bond-speficics		
Set 4 :	Other country-specific effects		
Set 5 :	Panel time-effects (years)		

Table 7: Dominance analysis of equation (4): Further details

Equation (4) has been estimated with country and year dummies to taken into account the importance of country and time effects as highlighted in the dominance analysis. As presented in Table8, this equation has been estimated in sequences by adding progressively sets of variables to the estimation and check their contribution to the overall fit of the model. A Wald test was performed at each step to check the significance of the additional (set of) varable(s). Infrastructure has been rejected by the Wald test as it proved nor significant neither to improve the fit.

Plenty of information can be drawn from the results of the estimation of equation (4) gathered in Table8. In addition to emphasizing the significant influence of countries' fundamentals, these results shed light on the marginal impact of bond-specific characteristics on bond yields. To start with, there appear to be a continuing impact of lead managers on secondary market yields. It appears that yields are on average higher with Barclays and Standard Bank, and lower with Deutsche Bank and other banks. Despite their significance, this observation does not support neither the lead manager's reputation impact of Daniels and Vijayakumar (2006) nor the physical proximity theory of Butler (2008) as, one, we could not find reasonable ground to establish that Deutsche Bank has a higher reputation than Barclays Bank, and two, markets do not seem to recognize the physical distance advantage for SSA sovereign Eurobonds underwriting to Standard Bank despite its African identity.

Ratings appear to influence the yields on the secondary market. These results show that bonds belonging to the low medium category (which constitute the lower layer of the investment grade and indeed the highest African rating) enjoy the lowest secondary market yields. On the other hand, the yields of the non-investment (speculative) and highly speculative categories appear to be higher than those of the non-rated bonds with consistent magnitudes vis-à-vis their risk profiles. In light of this observation, it seems not rewarding for SSA countries to seek rating when they do not qualify for an investment grade.

Unlike our expectation, debut issues seem to have advantageous yields compared to the subsequent ones for countries that have tapped international markets for more than one time. Common sense would lead to believe that newly issues bonds would experience more trade hence better liquidity and lower yields as a consequence but this does not seem to be the case for SSA sovereign Eurobonds. A possible explanation can be that the service of first issue might have affected countries' debt positions before they appear again to the market with new issues. This revives the debate on the sustainability of SSA Eurobonds as a means to generate growth and prosperity in this area. Critics have insisted on the challenges for debt-sustainability and the recent development in Ghana and Mozambique seem to vindicate their claims. We also observe a normal yield curve structure as the yields appear to increase with the maturity of the bond. Bonds of 10 years and more seem to have higher yields than their lower maturity counterparts and this trend seems increasing as maturity grows. These results indicate a seemingly size effect as bond between 500 million and 1.2 billion US$ seem to have generous yields compared to their counterparts of lower size. This effect vanishes when the size increases beyond this upper limit of 1.2 billion US$.

5 Conclusion

Our results indicate a significant influence of country-specific and bond-specific factors on SSA sovereign bond yields besides that of the already-documented global factors. We have found that these latter do not affect all the SSA countries in the same fashion. A short-run negative relationship between US Treasuries and Cote d'Ivoire, Ghana and Kenya bond yields has been noticed. This

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	lYield	lYield	lYield	lYield	lYield	lYield	lYield	lYield
lBloInd	-0.804***	-0.859***	-0.828***	-0.843***	-0.815***	-0.798***	-0.813***	-0.810***
	(0.112)	(0.107)	(0.0894)	(0.0817)	(0.0864)	(0.0922)	(0.0860)	(0.0882)
lVIX	0.343***	0.319***	0.321***	0.331***	0.334***	0.332***	0.333***	0.334***
	(0.0368)	(0.0375)	(0.0348)	(0.0361)	(0.0361)	(0.0399)	(0.0365)	(0.0361)
lUS10	0.352***	0.375***	0.386***	0.393***	0.387***	0.407***	0.390***	0.388***
	(0.0517)	(0.0531)	(0.0619)	(0.0564)	(0.0581)	(0.0596)	(0.0585)	(0.0581)
CAB2GDP		-1.496**	-1.150***	-0.934**	-0.904**	-1.034**	-1.030**	-0.934**
		(0.548)	(0.303)	(0.319)	(0.312)	(0.345)	(0.340)	(0.329)
Res2GDP		-0.473	-0.895*	-0.950*	-1.156**	-1.269**	-1.212**	-1.206**
		(0.378)	(0.488)	(0.529)	(0.431)	(0.508)	(0.458)	(0.435)
D2GDP		0.742***	0.604***	0.532***	0.584***	0.569**	0.497**	0.574***
		(0.210)	(0.112)	(0.141)	(0.162)	(0.207)	(0.191)	(0.178)
Def2GDP		2.483***	1.629***	1.579***	1.783***	1.797***	1.914***	1.833***
		(0.406)	(0.350)	(0.415)	(0.349)	(0.387)	(0.363)	(0.348)
GDPGrowth		-7.029***	-6.877***	-6.863***	-6.469***	-6.391***	-6.669***	-6.528***
		(1.625)	(1.639)	(1.598)	(1.453)	(1.646)	(1.465)	(1.470)
FxRate		0.0643	0.0879	0.0782	0.0704	0.179	0.0635	0.0626
		(0.121)	(0.115)	(0.127)	(0.121)	(0.111)	(0.123)	(0.122)
Inflation		3.201**	3.130**	3.451**	3.423**	3.737**	3.260**	3.322**
		(1.422)	(1.345)	(1.342)	(1.332)	(1.410)	(1.254)	(1.298)
IsBarclays			0.111**	0.175***	0.103**	0.0711	0.164***	0.144***
			(0.0425)	(0.0464)	(0.0359)	(0.0974)	(0.0347)	(0.0384)
IsDeutscheBank			0.0728	0.0918	0.00696	0.242***	-0.108**	-0.294***
			(0.0527)	(0.0530)	(0.0448)	(0.0583)	(0.0418)	(0.0492)
IsStandardBank			0.0782	0.115	0.137**	-0.0920*	0.203***	0.343***
			(0.122)	(0.0774)	(0.0548)	(0.0485)	(0.0455)	(0.0652)
IsOtherBanks			-0.0913	-0.0749	-0.0686*	-0.0485	-0.0146	-0.0485*
			(0.0570)	(0.0453)	(0.0350)	(0.0306)	(0.0295)	(0.0258)
InvestProfile :								
hs				0.478***	0.555***	0.0690	0.505***	0.737***
				(0.124)	(0.0816)	(0.0903)	(0.111)	(0.0848)
lm				-0.261***	-0.188***	-0.185***	-0.347***	-0.466***
				(0.0663)	(0.0544)	(0.0480)	(0.0949)	(0.0550)
ni				0.340**	0.379***	-0.109	0.383***	0.631***
				(0.111)	(0.0865)	(0.0660)	(0.0889)	(0.0889)
Debut					-0.101***	-0.122*	-0.0634**	-0.137***
					(0.0119)	(0.0577)	(0.0265)	(0.0130)
Infrastructure						-0.0332		
						(0.0745)		
BondSize :								
500-999 mio US $							-0.100	-0.0405**
							(0.0898)	(0.0156)
1000-1200 mio US $							-0.0657	-0.0952***
							(0.0822)	(0.0140)
>1200 mio US $							0.0958	-0.0213
							(0.0662)	(0.0189)
Maturity :								
9-10 years								0.196***
								(0.0173)
>10 years								0.215***
								(0.0420)
Constant	3.598***	4.009***	4.178***	3.960***	3.874***	4.107***	3.869***	3.720***
	(0.668)	(0.727)	(0.667)	(0.529)	(0.544)	(0.627)	(0.493)	(0.535)
Observations	991	826	826	766	766	677	766	766
R-squared	0.715	0.817	0.856	0.859	0.864	0.855	0.871	0.876
Wald ^{2} :		86.56***	153.79***	51.56***	71.55***	0.20	4.05**	6.44**
Country FE	yes	yes	yes	yes	yes	yes	yes	yes
Time FE	yes	yes	yes	yes	yes	yes	yes	yes

***, **, and * : significant at 1%, 5%, and 10% respectively
(.) : standard error

Table 8: Estimation of equation (4)

signals a probable substitution effect between these two sets of assets in the short run. Overall, we have found that countries' fundamentals (current account balances, foreign reserves, government debt levels and budget balances, GDP growth, exchange rate depreciation, and inflation) have different short-run influences on yields depending on countries while in the long-run only government debt levels, economic growth and exchange rate depreciation are the most important drivers.

Unlike previous studies, we have found a dominance of country-specific factors over both global and bond-specific factors in the explanation of SSA Eurobond yields on secondary markets. Our results indicate that, put together, countries's fundamentals and other specific factors count for 34.99% versus 22.91% and 21.82% for the global and bond-specific factors respectively. This observation indicates that markets are able to price-in not only countries' fundamentals behaviors but also other countries' specific factors that are not itemized in our model (e.g. government effectiveness, political risk or any other factors that might affect these countries' creditworthiness). This is in our view an indication of the confirmation of the market discipline hypothesis in the SSA sovereign Eurobonds market.

Bond-specific characteristics matter as well in the determination of secondary market SSA sovereign yields. We have found a strong impact of ratings where bonds in the investment grade category enjoy generous yields compared to their speculative counterparts. These latter appear to perform even worse than the non-rated ones. Size-wise, issues between 500 million and 1.2 billion US$ appear better attract investors than their counterparts of different sizes. Just the same, maturities of less than 10 years seem to be preferred over the longer ones. The theory about the impact of lead managers' reputation or physical proximity does not seem to hold for the case at hand.

In light of these results, we conclude that possibilities exist for SSA countries to influence the performance of their sovereign bonds on secondary markets. Suffice for them to improve their macroeconomic management by controlling essentially their debt levels, inflation and foreign exchange fluctuations, and creating a conducive environment for sustained economic growth.

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