The effect of sovereign credit ratings on democracy in sub-Saharan Africa

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Abstract

Purpose – This study investigates (1) whether democratization drives sovereign credit ratings (SCR) changes (the "democratic advantage") or whether SCR changes affect democratization, (2) whether the degree of democratization in sub-Saharan African (SSA) countries affects the associations and (3) whether the associations are significantly affected by resource dependence.

Design/methodology/approach – This study investigates the effects of SCR changes on democracy in 22 SSA countries over the period of 2000–2020 VEC Granger causality/block exogeneity Wald tests, and impulse responses and variance decomposition analyses with Cholesky ordering and Monte Carlo standard errors in a panel VECM framework.

Findings – The full sample impulse responses find that a SCR shock has a long-run detrimental effect on the democracy and political rights but only a short-run positive impact on civil liberties. Among the sub-samples, it is found that the extent of natural resource dependence does not affect the magnitude of SCR shocks on democratization mentioned above but it is found that a SCR shock affects long-run democracy in SSA countries that are relatively more democratic but is more likely to drive democratic deepening in less democratic SSA countries. The full sample variance decompositions further finds that the variance of SCR to a political rights shock outweighs the effects of all the macroeconomic factors, whereas in more diversified SSA countries, the variances of SCR are much greater for democracy and political rights shocks, which suggests that democratization and political rights in diversified SSA economies are severely affected by SCR changes. In the case of the high and low democracy sub-samples, it is found that the variance of SCR in the relatively higher democracy sub-sample is greater than in the low democracy sub-sample.

Social implications – These results have three implications for democratization in SSA. First, the effect of a SCR change is not a democratically agnostic and impacts political rights to a greater extent than civil liberties. Second, SCR changes have the potential to spark a negative cycle in SSA countries whereby a downgrade leads to a deterioration in socio-political stability coupled with increased financial economic constraints that in turn drive further downgrades and macroeconomic hardship. Finally, SCR changes are potentially detrimental for democracy in more democratic SSA countries but democratically supportive in less democratic SSA countries. Thus, SSA countries that are relatively politically sophisticated are more exposed to the effects of SCR changes, whereas less politically sophisticated SSA countries can proactively shape their SCRs by undertaking political reforms.

Originality/value – This study is the first to examine the associations between SCR and democracy in SSA. This is critical literature for the Africa's scholarly work given that the debate on unfair rating actions and claims of subjective rating methods is ongoing.

Keywords Democracy, Credit rating, Sub-Saharan Africa, Political rights, Civil liberties

Paper type Research paper

1. Introduction

Over the course of the last half-century, studies have shown that sovereign credit ratings (SCR) have a significant effect on democracy. According to the "democratic advantage" hypothesis (North and Weingast, 1989; Schultz and Weingast, 1996), governments that are

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constrained by democratic institutions can more credibly commit to repaying their debts. Consequently, democratic countries are expected to have higher SCRs than less democratic countries (Schultz and Weingast, 2003) because financial markets are more willing to purchase government bonds and to lend capital to democratic governments at lower interest rates. Hence, the "democratic advantage" literature posits that democracy drives SCRs.

Critics counter however that regime type does not significantly alter the interest rates charged to developing countries (Saiegh, 2005) and that much of the "democratic advantage" literature focusses too narrowly on bank finance, rather than on bond markets, and does not adequately consider the effects of the credit rating agencies themselves (Biglaiser and DeRouen, 2007). The political business cycle literature further posits that elected officials have an incentive to adopt policies that will increase voter support during democratic elections (Nordhaus, 1975; Lindbeck, 1976; Tufte, 1978) and thus in developing countries, elections often gauge the popularity of political leaders and current economic conditions rather than policy choices (Biglaiser and DeRouen, 2007). Consequently, there may be a mismatch between a developing country's democratic state and SCR during election periods (Block and Vaaler, 2004), which on the other hand may limit a government's propensity to borrow opportunistically for electoral gain (Hanusch and Vaaler, 2013).

In addition, it is possible that SCRs could have political effects, especially in developing countries, and thus the direction of causality would be the opposite to that posited by the "democratic advantage" literature. Investors in emerging markets have limited information about their investment destinations and are therefore overly reliant on the opinions of credit rating agencies (Cantor and Packer, 1996a, b; Larrian *et al.*, 1997; Kaminsky and Schmukler, 2001). However, it is unclear whether a SCR upgrade or downgrade positively or negatively affects democratization consistently. A SCR upgrade could positively affect democratization in developing countries by facilitating capital for socio-economic development while the deepening of democratic institutions forces government to maintain fiscal responsibility or face an electoral penalty (Biglaiser *et al.*, 2011). However, access to credit markets at low interest rates can also hinder democratization if the capital secured is used for heightened expenditure on domestic military enforcement that entrenches an undemocratic elite rather than deepens democracy (DiGiuseppe, 2015a, b; DiGiuseppe *et al.*, 2012). Similarly, when a developing country is downgraded, democratization can be deepened when the survival of a non-democratic regime is hampered by the diminished resources available for patronage and preferential allocation. However, a downgrade can also harm democratization because the restricted access to capital may force a government to divert social expenditure to opportunistically buy loyalty among a specific constituency that will prolong regime survival rather than broaden opposition politics (DiGiuseppe and Shea, 2015).

In addition, the relationship between credit ratings and democracy can be compounded by a country's natural resource endowment if the resource state derive a significant portion of their revenues from export taxes and resource extraction (Mcferson, 2010, p. 344). Consequently, resource-rich states are less accountable to the citizenry and may instead be more beholden to international resource companies. Hence, a SCR downgrade may impact democratization indirectly by raising the cost of doing business by resource companies, which increases the economic hardship in the country, and thus potentially raises the threat of political instability. According to the institutional view, natural resources will hamper institutional development, slow democratization, and weaken civil liberties and the rule of law (Leite and Weidmann, 1999; Isham *et al.*, 2005; Sala-i-Martin and Subramanian, 2008; Zalle, 2019). In theory, democratic reversal can be rectified by reforming institutions (Humphreys *et al.*, 2007) but in many resources-dependent states this is difficult because most inherently lack institutional capacity and thus the resource revenues entrench "bad" institutions and hinder democratization (Jensen and Wantchekon, 2004; Wiens, 2014).

The preceding discussion thus suggests that it is possible that democratization drives SCR changes (the "democratic advantage") or that SCR changes drive democratization. In addition, SCR changes can have positive or negative effects on democratization in developing countries. Despite these possibilities, to date, studies on the effects of SCRs on economies in sub-Saharan Africa (SSA) have been limited to examining the impact of SCRs on equity and debt markets (Mutize and Gossel, 2018a, 2019, 2020), and spill-over effects (Mutize and Gossel, 2018b). Hence, no study has considered the broader relationship between SCRs and democratization in SSA. This study is thus the first study of SSA [1] that investigates (1) whether democratization drives SCR changes (the "democratic advantage") or whether SCR changes affect democratization, (2) whether the degree of democratization in SSA countries affects the associations and (3) whether the associations are significantly affected by resource dependence. The remainder of this study proceeds as follows. Section 2 explores the democratization and SCR trends among 22 SSA countries. Section 3 then explores the applicable literature. Sections 4 and 5 explore the empirical methodology and data used to conduct the analysis. The results are then presented and discussed in Section 6, and the paper concludes with a summary of the results and policy implications in Section 7.

2. Stylized facts

Freedom House data presented in Figure 1(a) shows that after a significant improvement in the political rights (*PR*), civil liberties (*CL*) and composite democracy (*Demo*) indices in the early 2000s, the quality of democracy among the 22 SSA countries gradually deteriorated. Political rights and civil liberties peaked at 4.27 and 4.09 respectively in 2003 before deteriorating to 3.72 and 4.41 in 2020 while the composite democracy index declined from 0.55 to 0.47 over the same period. The composite index further shows that the decline in political rights was worse than the deterioration in civil liberties. The linear transformation of the S&P rating symbols from ordinal rating scales into numerical values in accordance with Afonso *et al.* (2011) presented in Figure 1(b) shows that after peaking in 2002 with an average credit score of 14 (equivalent to a BBB- rating), SCRs among the 22 SSA countries have steadily deteriorated, reaching a score of 9.14 in 2020 (equivalent to a B rating). Hence, Figure 1 suggests that deterioration in the quality of democracy is associated with a commensurate decline in SCRs. This is further supported by the scatterplots in Figure 2, which show that countries with higher democracy levels tend to have better SCRs.

Table 1 further shows that the number of SCR downgrades during the period of 2000–2020 is more than double the number of SCR upgrades (41 vs 18 respectively) [2].

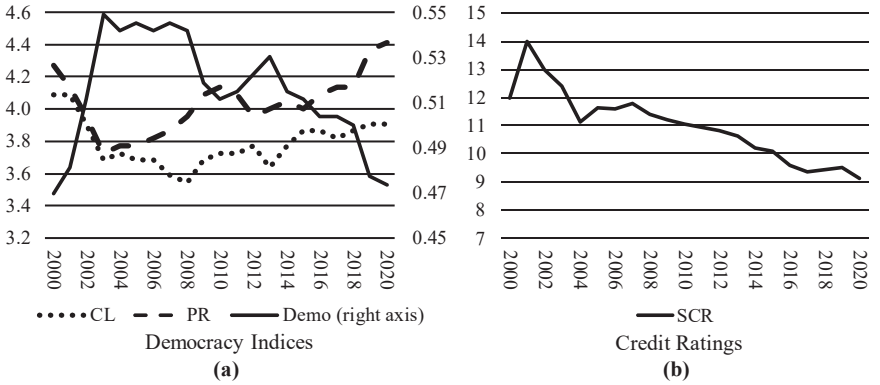

Figure 1.
Average democracy and SCRs

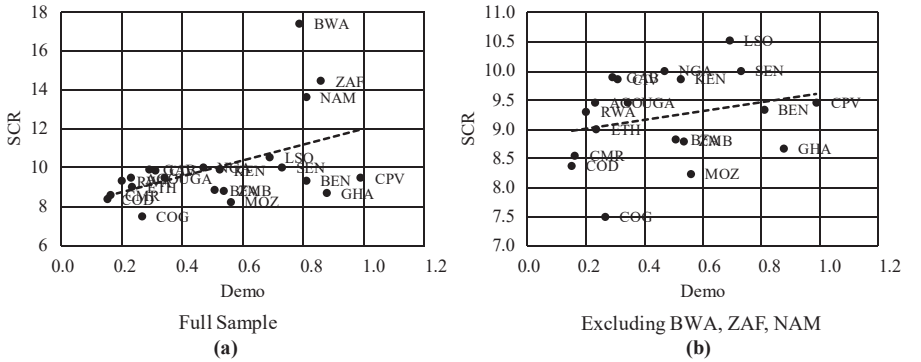

Figure 2.
Scatterplots of average democracy and SCRs

		2000–2009 [13]		2010–2020 [9]		2000–2020 [22]	
	Code	Upgrades	Downgrades	Upgrades	Downgrades	Upgrades	Downgrades
Angola	AGO	NR		2	4	2	4
Benin	BEN	NR		1	–	1	–
Botswana	BWA	UC		–	2	–	2
Burkina Faso	BFA	UC		1	1	1	1
Cameroon	CMR	2	1	–	1	2	2
Cape Verde	CPV	UC		–	1	–	1
Congo	COG	NR		–	1	–	1
DRC	COD	NR		1	4	1	4
Ethiopia	ETH	NR		UC		UC	
Gabon	GAB	NR		–	1	–	1
Ghana	GHA	UC		1	3	1	3
Ivory Coast	CIV	NR		1	–	1	–
Kenya	KEN	–	1	1	–	1	1
Lesotho	LSO	1	–	–	2	1	2
Mozambique	MOZ	1	–	1	3	2	3
Namibia	NAM	UC		–	2	–	2
Nigeria	NGA	–	1	1	3	1	4
Rwanda	RWA	NR		2	1	2	1
Senegal	SEN	UC		UC		UC	
South Africa	ZAF	2	–	–	4	2	4
Uganda	UGA	UC		–	1	–	1
Zambia	ZMB	NR		–	4	–	4
Total		6	3	12	38	18	41

Table 1.
Upgrades and downgrades

Note(s): NR indicates that the country was not rated during the period. UC indicates that the rating was unchanged during the period. [#] indicates the number of SSA countries that received a SCR over the period

However, during the initial rating period of 2000–2009, the number of SCR upgrades exceeded the number of downgrades (6–3 respectively), whereas the number of SCR downgrades in the subsequent decade of 2010–2020 was more than three times greater than the number of upgrades (38 against 12 respectively). Hence, considered in combination with Figures 1a and b, the circumstantial evidence indicates that the deterioration in SSA's SCRs has occurred in tandem with a decline in the democracy indices.

3. Literature review

To date, much of the SCR literature has considered whether political developments shape SCRs rather than the reverse. Among the first to empirically examine the efficacy of the "democratic advantage" (North and Weingast, 1989; Schultz and Weingast, 2003) is Archer *et al.* (2007), who investigates the political and macroeconomic determinants of Moody's, Standard and Poor's (S&P) and Fitch's bond ratings. The results show that the effects of macroeconomic factors outweigh the impact of political factors, and thus find no significant evidence of a "democratic advantage". Beaulieu *et al.* (2012) however point out that during the time-period of Archer *et al.*'s study, 67% of democratic countries were rated, whereas only 17% of autocratic countries were rated, raising the possibility of selection bias. Beaulieu *et al.* thus compensate for this possibility by considering all countries that received a SCR over a longer period. The empirical results then show, that in contrast to Archer *et al.*, there is statistically significant evidence of a "democratic advantage", which arises from better access to debt markets and favorable credit terms.

Biglaiser and Staats (2012) further report that the rule of law, strong and independent courts, and protection of property rights have significant positive effects on bond ratings. DiGiuseppe and Shea (2015) however argue that similar to Beaulieu *et al.* (2012), much of the "democratic advantage" literature does not adequately consider the likelihood that downgrades disproportionately impact autocratic vs democratic political leaders and systems. DiGiuseppe and Shea thus empirically examine the electoral mechanism of the "democratic advantage" and find that, as hypothesized, downgrades increase the political vulnerability of non-democratic leaders to a greater extent than democratic leaders. This may be particularly pertinent to SSA because the region is associated with weak democracy and a dysfunctional system of capitalism where unaccountable and compromised political leaders are entwined with the economic ambitions of corporations, particularly multinational mining companies (Omeje, 2021, pp. 90–91). Consequently, under these circumstances, a downgrade stresses the relationship between the predatory political elites and opportunistic multinationals. Yet this does not necessarily increase the pressure to democratize because by weakening the power of the elites, a SCR downgrade could increase the pressure to adopt short-term, populist or redistributive policies in an attempt to preserve the predatory system (Comeau, 2003; Ghardallou, 2022; Sandow *et al.*, 2022).

According to political business cycle theory (Nordhaus, 1975), a political economy moves from one electoral regime to another before eventually settling in a stable outcome. Hence, a single electoral regime is considered to be a homogeneous period. Among the first to consider whether political business cycle theory is relevant to private foreign lenders to developing countries is Block and Vaaler (2004), who report that credit rating agencies tend to downgrade a developing country more often in election years, usually by one rating level. In addition, they show that the reaction of bond spreads mirrors this reaction with higher spreads in the lead-up to an election compared to spreads after an election. These results thus indicate that credit rating agencies and bondholders view elections as risky events, thus increasing the cost of capital to developing democracies. Hanusch and Vaaler (2013) counter however, that rating agencies play a positive role in emerging democracies because ratings lessen the attractiveness of fiscal irresponsibility during election years and thus facilitate fiscal smoothing and fiscal discipline. Wang and Tu (2014) further report that changes in national leadership positively affect SCRs a year later but have a negative effect among countries with semi-presidential systems.

Hence, this suggests that financial stability and access to capital are an outcome of political choices (Girma and Shortland, 2008; Rajan and Zingales, 2003; Ghardallou, 2022). Consequently, whether the effect of the interaction between SCRs and democracy is positive or negative depends on the extent to which financial markets are self-correcting and politically and socially neutral. According to Keynes (1936), capitalism is not self-correcting

and thus the state must regulate the capital markets. Minsky (1986) further argues that because capitalism is inherently destabilizing, government and the banking system will need to intervene in the capital markets (Walby, 2013). Keynes and Minsky further posit that because capitalism is integrated into the socio-economic fabric, it has the potential to derive and propagate instability, thus requiring intervention to ensure a reversion to equilibrium (Walby, 2013). Polanyi (1944) however adds that in addition to government and the financial sector, civil society can play a stabilizing role. This is because civil society's welfare creation potentially offsets the instability of capitalism's natural commoditization of wealth, labor and assets (Walby, 2007, 2009, 2013). Hence, the "democratic advantage" arises from democratic policy choices (Baltagi *et al.*, 2009; Aluko *et al.*, 2019) that foster open and competitive financial and trade regimes (Rajan and Zingales, 2003; Becerra *et al.*, 2012), and strengthens property rights protection and civil liberties (Haber and Perotti, 2008).

In contrast to the "democratic advantage" literature, it is also possible that SCR changes can affect democratization. DiGiuseppe *et al.* (2012) argue that the limiting of credit access following a SCR downgrade may stifle democratization and increase the risk of civil conflict because a downgrade may necessitate the reallocation of state resources to the coercive and enforcement structures to compensate for social instability arising from macroeconomic hardship, thus heightening repression of political opposition, and limiting the capital available to fund the political base and social welfare. In addition to domestic conflict, DiGiuseppe (2015a) finds that credit access can also be used to sustain foreign conflicts because governments can use debt instead of tax revenues. Consequently, access to capital can grant leaders greater autonomy to undertake aggressive foreign policy, whereas fiscal constraints will limit foreign conflict because leaders will be more likely to experience political opposition, electoral defeat, and be removed from office due to the ensuing macroeconomic hardship associated with undertaking a foreign conflict without sufficient capital resources.

While DiGiuseppe (2015a) considers the effect of SCRs on foreign conflict initiation, DiGiuseppe (2015b) investigates whether access to credit allows leaders to expand military spending while delaying or minimizing the macroeconomic and redistributive costs as posited by DiGiuseppe *et al.* (2012). The results of DiGiuseppe (2015b) find that creditworthiness is associated with heightened military spending in accordance with regime type, and that creditworthiness shapes how a country reacts to external military threats. Thus, lower SCRs constrain domestic military expenditure and the ability to face an external security threat. In addition to hard power, Cooley and Snyder (2015) argue that SCRs also shapes soft power because emerging countries' need for credit access has created a global ratings infrastructure that disproportionately encourages "ratings diplomacy" whereby countries learn from each other how to lobby for better ratings. Consequently, complex policies and trade-offs are simplified and manipulated in the hope of obtaining a better SCR, while real reform policies are delayed.

In the case of SSA, the relationship between SCRs and democratic institutions may be further shaped by natural resource endowment. According to the demand hypothesis, investment by natural resource companies can be too large for the domestic banking system, and thus risk mitigation and portfolio optimization must be undertaken in the international financial markets (Berglof and Lehmann, 2009). This has the effect of both stifling and distorting the domestic banking sector (Ahmad and Ali, 2010). The volatility hypothesis further argues that international commodity price volatility can hamper domestic financial and socio-economic development through the transmission channels of inflation, economic growth, trade and real exchange rates (Boyd *et al.*, 2001; Van der Ploeg and Poelhekke, 2009; Roe and Siegel, 2011; Hattendorff, 2014; Mlachila and Ouedraogo, 2020).

It has however been argued that whether natural resource endowment is a blessing or curse depends on institutional quality rather than on the natural resources itself (Acemoglu *et al.*, 2001; Bhattacharyya and Hodler, 2014; Abdulahi *et al.*, 2019; Islam *et al.*, 2020; Khan

et al., 2020). Countries with strong democratic institutions should be better positioned to limit the potentially negative effects or abuse of commodity windfalls (Mlachila and Ouedraogo, 2020); lower rent-seeking, corruption and elite power concentration (Mehlum *et al.*, 2006), strengthens contract enforcement (Acemoglu and Johnson, 2005); entrench the democratic, economic and political institutions (Boschini *et al.*, 2007; Acemoglu and Robinson, 2012), and support economic diversification (Kurronen, 2015).

In contrast, countries with poor institutions will have higher levels of corruption, be more exposed to moral hazard lending (Sharma and Paramati, 2020), and thus have unstable and weak domestic financial markets and institutions (Venard and Hanafi, 2008). These detriments have the effect of exaggerating the impact of SCR changes because countries with weak institutions and high resource endowment tend to have powerful "gatekeeping" elites that are more likely to react positively or negatively to the SCR changes based on the responses of multinational mining companies rather than on the socio-economic needs of the domestic citizenry (Rajan and Zingales, 2003). In addition, this relationship hinders financial development by stifling regulatory oversight of the domestic banking system (Acemoglu and Johnson, 2005; Beck *et al.*, 2003; La Porta *et al.*, 1997, 1998), which heightens credit risk (Dwumfour and Ntow-Gyamfi, 2018), and in turn increases the likelihood of a SCR downgrade, fueling a vicious cycle.

4. Methodology

This study investigates the relationship between SCRs and democracy in 22 SSA countries over the period of 2000–2020 using VEC Granger causality/block exogeneity Wald tests, and impulse responses and variance decomposition analyses with Cholesky ordering and Monte Carlo standard errors in a panel VECM framework based on the basic model represented by equation (1) below:

$$\Delta Y_{it} = \theta_{1j} + \gamma_{1i} ECT_{it-1} + \sum_{k} \theta_{ik} \Delta Y_{it-k} + \sum_{k} \theta_{ik} \Delta SCR_{it-k} + \sum_{k} \theta_{ik} \Delta L_{it-k} + \mu_{1it} \quad (1)$$

where $Y_{i,t}$ denotes a Freedom House measure of democracy for country i at time t, γ_{1i} *and* θ_{ij} are constant coefficients, ECT_{it-1} is the lagged Error Correction Term, SCR is the SCR for country i at time t, L is a vector of control factors, Δ denotes first differences, k represents lag length and μ_{1it} is the error term.

In addition to the full sample, the analysis also makes use of three sub-samples [3]. The first takes account of the potentially distortionary effects associated with SSA countries that have high reliance on commodity exports (Jensen and Wantchekon, 2004; Asiedu and Lien, 2011). This is accomplished by excluding the seven SSA countries from the sample whose average commodity exports or oil rents exceeds 25% of merchandise exports or GDP respectively over the sample period (IMF, 2012). Next, the second and third sub-samples assess whether the state of contemporaneous democratization affects the associations by only including the SSA countries where the average Helliwell democracy index (Helliwell, 1994) is above 0.5 (12 countries) or below 0.5 (10 countries) respectively.

5. Data

The empirical estimations make use of three dependent factors, one factor of interest and five control factors. The period covered by the study is from 2000 to 2020. The start date has been determined by the availability of credit ratings (except for South Africa, the majority of SSA countries received their first SCR after 1999), while the end date has been limited by the availability of control factor data, which was obtained from the World Bank World Development Indicator database.

5.1 Dependent factors

This study includes three separate dependent factors using data obtained from the Freedom House Foundation. The first is the political rights index (*PR*), which measures the efficacy of elections, the individual's rights to participate in the political processes and the constitutional role of the elected government in decision-making. The second is the civil liberties index (*CL*), which measures an individual's freedom of expression, belief, and association, the rule of law, and the degree of individual sovereignty. Each index is rated from 1 (strongly democratic) to 7 (no democratic rights), normalized to lie between 0 (no rights) and 1 (strong rights) [4]. In addition to these two indices, the study uses the Helliwell (1994) composite democracy index (*Demo*), derived from the following equation [5]:

$$Demo = \frac{14 - (PR + CL)}{12} \tag{2}$$

5.2 Independent factor of interest

The independent factor of interest comprises the episodes of annual sovereign ratings of S&P for 19 countries and Fitch for three countries where S&P ratings are not available [6]. The SCR data was obtained from the *tradingeconomics.com* database and was then linearly transformed in accordance with Afonso *et al.* (2011) to range between 0 (equivalent to a D rating) and 23 (equivalent to an AAA rating). In cases where a rating change occurred during a particular year, the rating held for the majority of the 12-month period is used instead of the short-run rating change.

5.3 Control factors

In addition to the three dependent factors and the factor of interest, the analysis also includes six control factors, which isolate the economic effects associated with creditworthiness from the impact on democracy. The control factor data was obtained from the World Bank's World Development Indicators. The six control variables have been selected based on the related studies of Biglaiser *et al.* (2011), Beaulieu *et al.* (2012), Biglaiser and Staats (2012). The first control factor is real GDP growth (*GDPG*), measured as the annual percentage change in GDP [7]. The second control factor is trade as a percentage of GDP (*Trade*), which is included as a measure of trade openness, and accounts for the potential benefits associated with trade liberalization and integration into the global economy (Armijo, 2001). The third control factor is inflation (*CPI*), which is measured by the annual percentage change in the consumer price index and is included to capture the potential effects of macroeconomic and political instability (Biglaiser *et al.*, 2011). The fourth control factor is gross fixed capital formation as a percentage of GDP (*GFCF*) as a measure of fixed development and industrialization. The fifth and sixth control factors are the related factors of total external debt as a percentage of GNI (*Debt*) and the current account balance (*CAB*), which are both included as proxies for default risk and thus sovereign credit risk (Biglaiser and DeRouen, 2007) [8].

6. Results

This section discusses the results of the panel VECM analyses of the relationship between democracy and SCR in 22 SSA countries over the period of 2000–2020. Before conducting the analysis, a correlation matrix is produced to determine whether there are any significant coefficients that need to be considered. The results presented in Table 2 show that the coefficient between the democracy factors (*Demo*, *PR* and *CL*) is highly correlated, and thus these three factors are run in separate models.

The next step is to ensure that none of the variables are I(2), which is achieved using Levin–Lin–Chu (LLC) (2002) common unit root tests and augmented Dickey–Fuller–Fisher chi-squared individual unit root tests (Maddala and Wu, 1999) (ADF-Fisher). The results of the unit root tests are summarized in Table 3 and show that political rights (*PR*), civil liberties (*CL*), sovereign credit ratings (*SCR*) and trade openness (*Trade*) are first-difference stationary while the remaining six factors are level stationary.

Hence, the next step is to determine if there are any significant cointegrating relationships between the first-difference variables. This is accomplished using the cointegration tests of Pedroni (1999, 2000, 2004), which take account of individual short-run dynamics, individual fixed effects, deterministic trends and individual slope coefficients. The Pedroni cointegrations tests make use of four statistics to test the "within-dimension", consisting of the panel variance-statistic, the panel rho-statistic, the panel PP-statistic and the panel ADF-statistic. In addition, there are three tests for cointegration in the "between dimensions", which are the group rho-statistic, the group PP-statistic and the group ADF-statistic. The results of the panel cointegration test presented in Table 4 show that although three of the tests find no cointegration (the panel variance, the panel rho and the group rho tests), the remaining four tests find significant evidence of cointegration. Hence, it can be conservatively concluded that there is more evidence of cointegrating relationships than non-cointegration between the non-stationary factors [9].

The next step of the analysis is to identify the optimal lag for the VECM estimations. Standard lag selection tests show that one lag is optimal for all the models based on the SIC

	Demo	PR	CL	SCR	GDPG	CPI	Trade	GFCF	CAB	Debt
Demo	1	0.975	0.950	0.422	−0.134	−0.086	0.349	0.002	0.035	0.059
PR	0.975	1	0.870	0.381	−0.131	−0.043	0.318	−0.038	0.057	0.064
CL	0.950	0.870	1	0.448	−0.122	−0.127	0.361	0.056	0.009	0.047
SCR	0.422	0.381	0.448	1	−0.040	−0.034	0.159	−0.105	0.366	−0.440
GDPG	−0.134	−0.131	−0.122	−0.040	1	−0.032	−0.196	−0.196	0.054	−0.267
CPI	−0.086	−0.043	−0.127	−0.034	−0.032	1	−0.051	−0.030	0.129	0.011
Trade	0.349	0.318	0.361	0.159	−0.196	−0.051	1	0.538	−0.064	0.275
GFCF	0.002	−0.038	0.056	−0.105	−0.196	−0.030	0.538	1	−0.444	0.462
CAB	0.035	0.057	0.009	0.366	0.054	0.129	−0.064	−0.444	1	−0.391
Debt	0.059	0.064	0.047	−0.440	−0.267	0.011	0.275	0.462	−0.391	1

Table 2.
Correlations

	LLC		ADF – Fisher	
	I(0)	I(1)	I(0)	I(1)
Demo	−2.759***	−13.044***	66.444***	191.825***
PR	−1.300*	−7.567***	46.789**	77.094***
CL	−0.441	−8.638***	25.449	112.694***
SCR	1.925	−6.587***	16.840	82.816***
CAB	−3.339***	−15.168***	78.046***	222.883***
CPI	−10.651***	−16.409***	195.791***	415.848***
Debt	−4.398***	−11.597***	63.468**	232.210***
GDPG	−2.066**	−13.278***	119.628***	322.666***
GFCF	−1.696**	−15.840***	52.921	262.598***
Trade	−1.549*	−15.613***	50.743	233.469***

Note(s): Automatic lag selection based on SIC. ***, **, and * represent significance at the 1%, 5% and 10% level respectively

Table 3.
Unit root tests

	PR, SCR, trade	CL, SCR, trade
Panel v-Statistic	−556.597	−1862.700*
Panel rho-Statistic	−0.483	−0.282
Panel PP-Statistic	−3.570***	−1.769**
Panel ADF-Statistic	−3.782***	−1.986**
Group rho-Statistic	1.308	0.998
Group PP-Statistic	−6.366***	−3.601**
Group ADF-Statistic	−6.435***	−2.966**

Table 4. Pedroni cointegration test results

Note(s): ***, ** and * represent significance at the 1%, 5% and 10% level respectively. Trend assumption: No deterministic trend, automatic lag length selection based on SIC, Newey–West automatic bandwidth selection and Bartlett kernel

and HQ information criteria. Hence, based on the preceding tests, all the VECM estimations include one cointegrating equation and one lag length. Having identified the optimum lag length, the study next estimates the VECM models to conduct the Granger causality, impulse response and variance decomposition analyses [10].

6.1 Granger causality results

The results of the full sample Granger tests for possible causal relationships between SCRs and the democracy factors are presented in panel (a) of Table 5. The results indicate that SCRs unidirectionally affect political rights (*PR*) but have no significant causal association with the composite democracy index (*Demo*) or civil liberties (*CL*). These results imply that SCRs potentially impact voting behavior and affects voters' perceptions, possibly because voters either benefit or suffer from the policy decisions of politicians, and because voters regard SCRs as an independent assessment of political leadership (Cunha *et al.*, 2022). However, the insignificance of the association with civil liberties indicates that Polanyi (1944) contention that the stabilizing effect of civil society as a counterbalance to financial market instability may not apply to SSA. Panel (b) presents the Granger results of the sub-sample that excludes the seven SSA countries where the average commodity exports or oil rents over the sample period exceeds 25% of merchandise exports or GDP respectively. The results find that unlike the full sample results in Table 5(a), there are bidirectional associations between democracy (*Demo*) and SCR, and political rights (*PR*) and SCR. However, there are indications that the direction of causality runs from SCR to democracy and political rights to a greater extent than the reverse. This is similar to the full-sample results but implies that there is positive feedback between SCRs and democratization in diversified SSA economies which is absent in resource export-dependent SSA countries. This may reflect the higher competition and more open financial markets in diversified SSA economies compared to the less competitive, patron–client relationships in resource-dependent SSA states.

The results of the high democracy sub-sample in Table 5(c) show that there is significant unidirectional causality running from SCR to democracy and political rights, which suggests

	(a) Full sample	(b) Low commodities	(c) High democracy	(d) Low democracy
D(SCR) to D(Demo)	2.620	6.840***	3.733**	0.225
D(Demo) to D(SCR)	1.522	4.068**	0.876	0.084
D(SCR) to D(PR)	4.644**	11.861***	6.431***	0.604
D(PR) to D(SCR)	1.926	6.056**	0.316	0.242
D(SCR) to D(CL)	0.020	0.080	0.064	0.009
D(CL) to D(SCR)	0.059	0.010	1.001	1.001

Table 5. Granger results

Note(s): ***, **, * represent significance at the 1%, 5%, 10% levels respectively

that, in accordance with the "democratic advantage" hypothesis, SSA governments that are constrained by strong democratic institutions can more credibly commit to repaying their debts. Although no significant causality is found between SCR and civil liberties (*CL*), it is an attribute of democratic governments to respect the individual freedoms of citizens and it is therefore possible that SCRs are indirectly affected by the political outcomes of civil liberties (such as the efficiency and constitutional participation of government elections) rather than directly, which would imply that international investors use elections as a proxy for institutional quality (Touchton, 2015; Gossel, 2020). In contrast, the results of the low democracy sub-sample summarized in Table 5(d) show that there are no significant causal associations between SCR and democracy. A possible reason for this is because evidence from countries that have defaulted on their debts shows that in countries with low levels of democracy, regime type does not significantly determine the capacity, ability and willingness to repay a country's debt obligations and thus rating agencies are more concerned about economic conditions and policy choices rather than regime type.

6.2 Impulse response results

The full sample impulse responses presented in Figure 3(a) show that a SCR shock has a detrimental effect on the democracy and political rights indices but has a brief positive impact on civil liberties. These results indicate that a SCR change is not a developmentally agnostic shock and has the potential to spark a negative cycle in SSA countries whereby a downgrade leads to a deterioration in socio-political stability coupled with increased financial economic

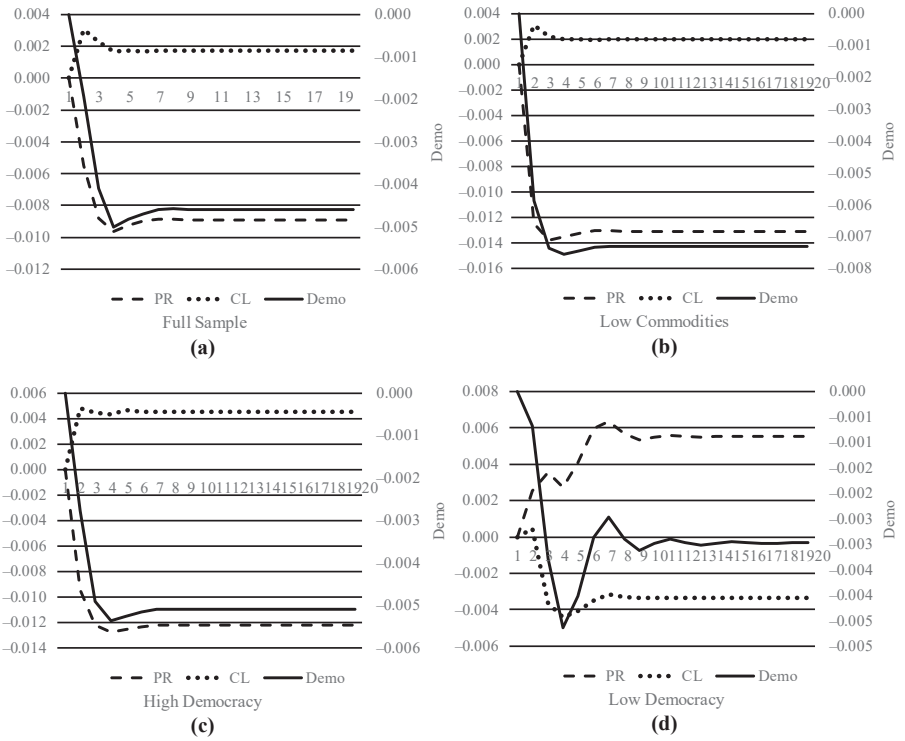

Figure 3.
Impulse response results

constraints that in turn drive further downgrades. The opposite may also explain the prevalence of high and improving SCR's in developed democratic and capitalist countries.

Furthermore, the finding that the impact on political rights (*PR*) is more severe than on civil liberties (*CL*) accords with the Granger causality results and suggests that a government's creditworthiness affects electoral and constitutional democratization to a greater extent than freedoms to exercise an individual's right to participate in the political processes. This may reflect SSA's weak democratic levels (Wig and Tollefsen, 2016) and associated prevalence of incumbency (Ncube, 2012), co-opting of opposition forces (Southall, 2001; Mills and Herbst, 2012, p. 15), post-election violence (Bhasin and Gandhi, 2013); and militarism, patrimonialism, patronage and clientelism (Southall, 2003a, b), all of which limit the transmission of SCR shocks through the political economy to the broader socio-economic structures.

Regarding the sub-sample analyses, low-commodity export-dependent sub-sample impulse responses presented in Figure 3(b) are relatively unchanged from the full sample results in Figure 3(a), which suggest that the extent of natural resource dependence does not affect the magnitude of SCR shocks on democratization. The high democracy sub-sample impulse responses in Figure 3(c) are also similar to the full sample results. However, the low democracy sub-sample results in Figure 3(d) show that although democracy (*Demo*) responds negatively in the short-run, there is no long-run effect. However, the effects of a SCR shock have the opposite effects on political rights (*PR*) and civil liberties (*CL*) to those in the other samples whereby political rights have a long-run positive response and civil liberties a long-run negative response. Hence, Figures 3c and d suggest that a SCR shock affects long-run democracy in SSA countries that are relatively more democratic. These findings accord with Biglaiser *et al.* (2011), who argue that more democratic countries are negatively affected by a SCR shock because the downgrade inhibits the inflow of finance for socio-economic development, potentially exposing the elected government to an electoral penalty. However, Figure 3(d) further suggests that a SCR change is more likely to drive democratic deepening in less democratic SSA countries than in SSA countries that have already consolidated democratic rights. Consequently, a SCR change is possibly democratically deleterious to more democratic SSA countries but democratically supportive to less democratic SSA countries.

6.3 Variance decomposition results

Having considered the Granger causality tests and the impulse responses, the discussion next turns to the results of the variance decompositions. The full sample results presented in Table 6(a) show that in the democracy model, a SCR shock induces more variance than shocks to the domestic factors of economic growth (*GDPG*), inflation (*CPI*), fixed investment (*GFCF*) and the intermediating channel of the capital account balance (*CAB*) but is outweighed by the international channels of trade openness (*Trade*) and external debt (*Debt*) shocks. The variance of SCR in the political rights (*PR*) model in contrast outweighs the effects of all the macroeconomic factors, whereas the response of SCR in the civil liberties (*CL*) model is marginally outweighed by trade and fixed investment, but is significantly outweighed by debt shocks, which has the largest variance of all the factors.

Regarding the sub-sample results, the low-commodity export-dependent variance decompositions summarized in Table 6(b) indicate that the contribution of the variances of SCR are much greater for democracy and political rights than in the full sample results shown in Table 6(a). This result indicates that democratization and political rights in diversified SSA economies are severely affected by SCR changes. A possible reason for this is because diversified SSA countries tend to be more democratic and globalized, and therefore strive to obtain and maintain high credit ratings to instill confidence in the sovereign government and private sector prosperity.

In the case of the high and low democracy sub-samples, the high democracy variance decomposition results in Table 6(c) show that the effect of a SCR shock is only outweighed by

Table 6.
Variance decompositions

Period	S.E.	Demo	SCR	GDPG	CPI	Trade	GFCF	CAB	Debt	S.E.	PR	SCR	GDPG	CPI	Trade	GFCF	CAB	Debt	S.E.	CL	SCR	GDPG	CPI	Trade	GFCF	CAB	Debt
(a) Full Sample Results																											
1	0.039	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.057	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.082	93.715	1.022	0.400	0.613	1.737	0.893	0.095	1.526	0.111	92.381	2.332	0.303	0.794	1.798	1.809	0.068	0.515	0.108	98.040	0.172	0.076	0.037	0.340	0.141	0.098	1.097
10	0.115	93.193	1.336	0.380	0.778	1.994	0.685	0.107	1.528	0.155	91.662	2.856	0.329	0.916	2.199	1.639	0.038	0.360	0.150	97.759	0.153	0.053	0.060	0.311	0.198	0.055	1.411
15	0.140	93.012	1.441	0.370	0.833	2.082	0.617	0.110	1.534	0.189	91.407	3.036	0.335	0.959	2.339	1.590	0.027	0.307	0.183	97.660	0.147	0.045	0.068	0.300	0.216	0.040	1.523
20	0.161	92.921	1.495	0.365	0.861	2.127	0.583	0.111	1.538	0.217	91.278	3.127	0.338	0.981	2.409	1.565	0.021	0.281	0.210	97.609	0.144	0.041	0.072	0.295	0.226	0.033	1.580
(b) Low Commodity Export Dependence Sub-Sample Results																											
1	0.039	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.084	94.269	2.826	0.799	0.036	0.687	0.278	0.136	0.970	0.112	90.301	5.584	1.495	0.688	0.619	0.440	0.326	0.547	0.113	98.039	0.172	0.048	0.320	0.707	0.106	0.181	0.428
10	0.118	93.416	3.359	1.183	0.024	0.844	0.143	0.121	0.910	0.156	88.771	6.375	2.184	0.823	0.795	0.230	0.393	0.428	0.157	97.915	0.166	0.041	0.292	0.755	0.125	0.187	0.518
15	0.144	93.122	3.542	1.316	0.019	0.897	0.097	0.116	0.891	0.191	88.233	6.652	2.426	0.870	0.855	0.157	0.418	0.388	0.191	97.872	0.165	0.040	0.282	0.772	0.131	0.189	0.549
20	0.166	92.974	3.634	1.382	0.017	0.924	0.074	0.114	0.881	0.220	87.960	6.793	2.548	0.894	0.886	0.120	0.430	0.368	0.220	97.849	0.164	0.038	0.278	0.781	0.134	0.190	0.565
(c) High Democracy Sub-Sample Results																											
1	0.039	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.085	92.848	1.226	0.153	0.343	2.264	1.977	0.057	1.132	0.113	89.088	4.354	0.119	0.082	1.367	4.085	0.150	0.755	0.105	94.421	0.746	0.167	0.637	1.930	1.008	0.005	1.086
10	0.119	92.140	1.546	0.080	0.245	2.735	2.147	0.042	1.066	0.158	87.680	5.223	0.086	0.078	1.801	4.471	0.125	0.537	0.148	93.963	0.845	0.143	0.627	1.973	1.061	0.003	1.385
15	0.145	91.894	1.654	0.054	0.212	2.893	2.209	0.037	1.048	0.193	87.192	5.518	0.075	0.076	1.945	4.613	0.116	0.465	0.181	93.806	0.878	0.136	0.625	1.989	1.079	0.002	1.485
20	0.167	91.770	1.708	0.042	0.195	2.973	2.240	0.034	1.039	0.223	86.944	5.668	0.070	0.075	2.019	4.684	0.111	0.429	0.209	93.727	0.895	0.132	0.624	1.997	1.088	0.002	1.535
(d) Low Democracy Sub-Sample Results																											
1	0.038	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.068	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.083	86.979	0.711	0.485	6.940	0.801	2.161	1.757	0.165	0.120	94.311	0.304	0.582	2.468	1.291	0.342	0.433	0.269	0.122	94.561	0.335	0.023	2.026	0.361	1.075	1.552	0.067
10	0.115	87.305	0.687	0.270	7.215	1.034	1.832	1.541	0.116	0.170	94.421	0.731	0.338	2.303	1.484	0.310	0.218	0.195	0.167	94.536	0.379	0.026	2.177	0.297	1.055	1.491	0.039
15	0.139	87.326	0.692	0.195	7.370	1.109	1.732	1.474	0.102	0.208	94.452	0.839	0.261	2.288	1.545	0.292	0.146	0.177	0.202	94.502	0.395	0.026	2.241	0.277	1.055	1.474	0.029
20	0.160	87.338	0.696	0.156	7.453	1.148	1.676	1.438	0.094	0.240	94.466	0.893	0.223	2.281	1.576	0.284	0.110	0.168	0.232	94.486	0.404	0.027	2.274	0.267	1.054	1.464	0.024

trade, fixed investment and debt shocks. Similar to the results in the full sample, the variance of SCR in the political rights model, presented in Table 6(c), is greater than all of the other factors, whereas SCR in the civil liberties model is outweighed by all of the factors except for economic growth (*GDPG*), inflation (*CPI*) and capital account balance (*CAB*). In contrast, the low democracy sub-sample results summarized in Table 6(d) show that the variance of SCR in the democracy model is outweighed by all the other macroeconomic factors except for economic growth and external debt. In the political rights model, the variance of SCR is not as impactful as in the high democracy sub-sample but is greater than the variance of economic growth, fixed investment, capital account balance and external debt, whereas SCR in the civil liberties model is outweighed by economic growth, trade openness and external debt. Hence, the results in Tables 6(c) and 6(d) suggest that a SCR shock induces more variance in the relatively higher democracy sub-sample than in the low democracy sub-sample and has the most significant distortionary effects on political rights in more democratic SSA countries.

7. Conclusion

This study used Granger causality, impulse responses and variance decomposition analysis in a panel VECM framework to study 22 *SSA* countries covering the period of 2000–2020 to determine whether *SCR* changes affect democratization, whether the associations are significantly affected by resource dependence and whether the degree of democratization in SSA countries affects these associations. The full sample Granger results indicate that SCRs unidirectionally affect political rights. The sub-sample analyses further show that there is positive feedback between SCRs and democratization in diversified SSA economies but not in resource export-dependent SSA countries, and that the "democratic advantage" hypothesis holds for more democratic SSA countries but not for weakly democratic SSA countries.

The full sample impulse responses find that a SCR shock has a long-run detrimental effect on the democracy and political rights but only a short-run positive impact on civil liberties. Among the sub-samples it is found that the extent of natural resource dependence does not affect the magnitude of SCR shocks on democratization mentioned above but it is found that a SCR shock affects long-run democracy in SSA countries that are relatively more democratic but is more likely to drive democratic deepening in less democratic SSA countries. The full sample variance decompositions further finds that the variance of SCR to a political rights shock outweighs the effects of all the macroeconomic factors, whereas in more diversified SSA countries, the variances of SCR are much greater for democracy and political rights shocks, which suggests that democratization and political rights in diversified SSA economies are severely affected by SCR changes. In the case of the high and low democracy sub-samples, it is found that the variance of SCR in the relatively higher democracy sub-sample is greater than in the low democracy sub-sample.

These results have three implications for democratization in SSA. First, the effect of a SCR change is not democratically agnostic and impacts political rights to a greater extent than civil liberties. Second, SCR changes have the potential to spark a negative cycle in SSA countries whereby a downgrade leads to a deterioration in socio-political stability coupled with increased financial economic constraints that in turn drive further downgrades and macroeconomic hardship. Finally, SCR changes are potentially detrimental for democracy in more democratic SSA countries but democratically supportive in less democratic SSA countries. Thus, SSA countries that are relatively politically sophisticated are more exposed to the effects of SCR changes, whereas less politically sophisticated SSA countries can proactively shape their SCRs by undertaking political reforms.

Notes

1. The countries are listed in Appendix 1.

2. Note that the number of upgrades and downgrades does not take account of the rating level of the upgrade or downgrade. For example, a SCR downgrade from 12 (equivalent to BB) to 9 (equivalent to B) is reflected as one occurrence.
3. The countries included in the sub-samples are indicated in Appendix 1.
4. The Freedom House (FH) political rights and civil liberties indices are normalized using the equation *FH normalized = (8-FH)/7*
5. The Helliwell (1994) derivation has been used rather than the Polity V dataset because Polity ends in 2018.
6. The three countries are Ivory Coast, Lesotho and Namibia.
7. The analysis excludes GDP per capita because, as argued by Beaulieu *et al.* (2012), this factor is driven by past experiences with democratic governance and can therefore affect the measurement of contemporaneous democracy.
8. The analysis does not include institutional quality as a control factor because this factor is included in the sovereign credit rating assessments and can thus lead to endogeneity.
9. The results do not significantly change when using the Parzen kernel instead of the Bartlett kernel.
10. The plots of the inverse roots of the AR characteristic polynomials are presented in Appendix 2.

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Appendix 1
Sample Countries

Angola[a], Benin[b], Botswana[b], Burkina Faso[b], Cameroon, Cape Verde[b], Congo[a], Democratic Republic of Congo[a], Ethiopia, Gabon[a], Ghana[b], Ivory Coast, Kenya[b], Lesotho[b], Mozambique[a, b], Namibia[b], Nigeria, Rwanda[a], Senegal[b], South Africa[b], Uganda, Zambia[a, b]

[a]indicates countries where oil rents or commodity exports exceeded 25% of GDP or merchandise exports respectively; [b]indicates countries where the Helliwell (1994) democracy index is above 0.5.

Appendix 2

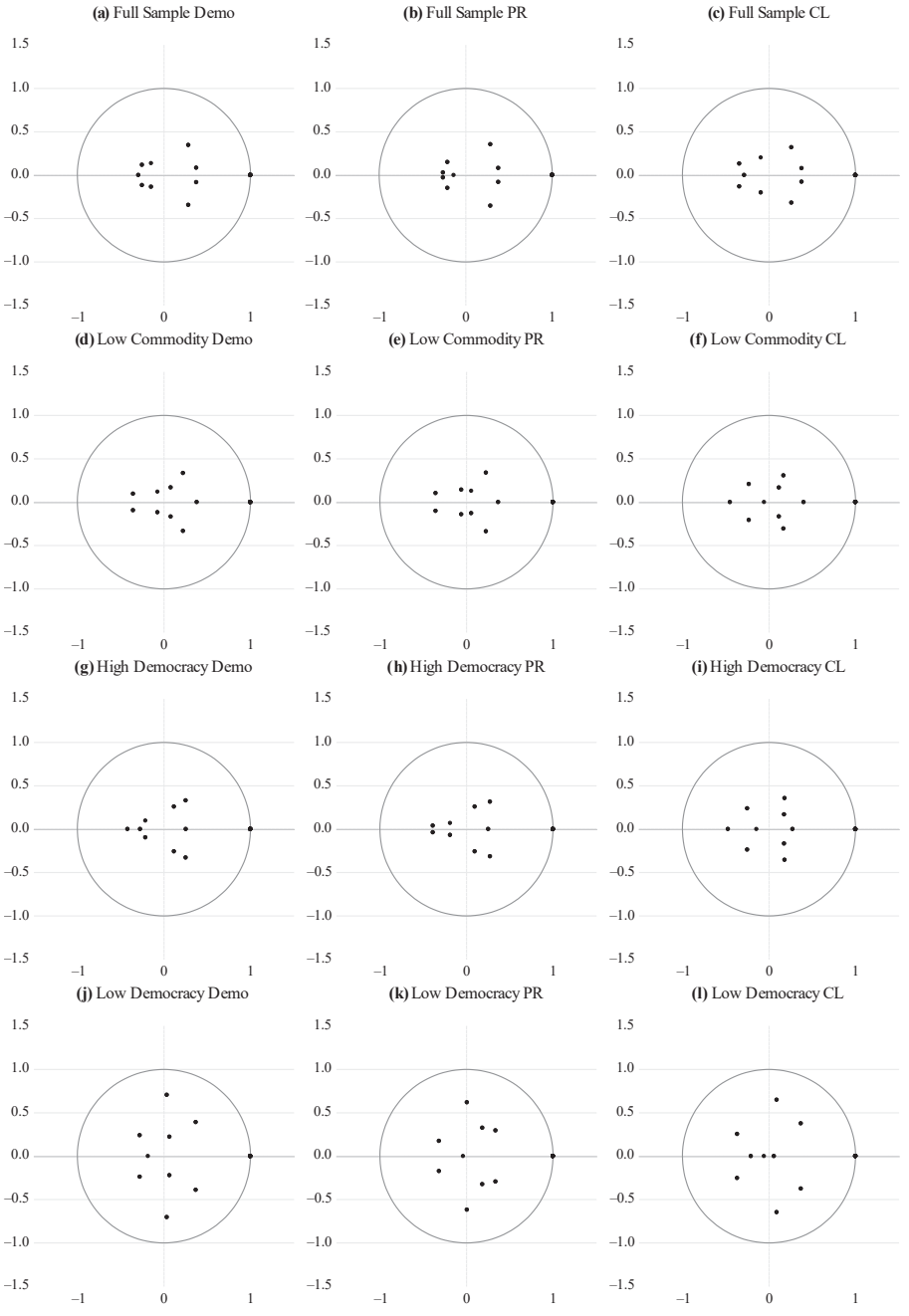

Figure A1.
Plots of the inverse roots of the AR characteristic polynomials