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Toward the African Continental Free Trade Area

The Effects of Economic Integration and Democracy on Real Misalignments across Exchange Rate Regimes

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Abstract

This paper evaluates the role of economic integration and democracy in rationalizing differences in real exchange rate misalignments across exchange rate regimes in Africa. To this end, the paper derives competing indexes of misalignment using modern cointegration techniques while accounting for cross-sectional dependence. The findings indicate that fixed regimes per se are not prone to more misalignments, as institutional quality and economic links with foreign partners critically matter in explaining the observed discrepancies. Furthermore, when distinguishing between African and international partners in investment agreements, the extent of misalignment differs according to the level of democracy, as democratic countries can afford intermediate regimes, while for weak democracies, fixed regimes are required to curb disequilibria. Finally, membership in a regional economic community significantly reduces the magnitude of misalignments. The results imply that the quality of institutions, more than the type of the exchange rate regime, is called into question and should be the focus of efforts ahead of successful implementation of the African Continental Free Trade Area.

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Toward the African Continental Free Trade Area: The Effects of Economic Integration and Democracy on Real Misalignments across Exchange Rate Regimes

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I. Introduction

Africa is now framed with several blocks of economic communities that reflect the economic and political will of leaders and policy makers to foster regional integration. However, these blocs have been instituted separately from each other and as a result differ in terms of structure and activity, thus raising concerns regarding the implementation of the African Continental Free Trade Area (AfCFTA; UNECA, 2019). Indeed, the expected benefits from the AfCFTA may be subdued as long as weak macroeconomic convergence, infrastructure gap, and threats to peace are lingering across countries. Specifically, macroeconomic convergence and monetary integration are of paramount importance as members of economic groupings must react similarly to price, fiscal or debt shocks, to reduce income or growth disparities and ultimately gain from economic integration in a similar way. Our paper tackles this issue by assessing how members of regional groupings in Africa are performing in terms of real exchange rate (RER) alignments. The focus is on the way trade and investment integration helps in limiting real misalignments across various types of exchange rate arrangements and political frameworks.

Such an analysis is critical for African countries moving towards the implementation of the AfCFTA for three main reasons. First, convergence criteria that explicitly account for exchange rate variations had not been explicitly considered up to now,[4] even though Export Processing Zones,[5] recognized as an important tool in promoting countries' exports, had been theoretically found to be hampered by exchange rate overvaluation (UNECA, 2010). More importantly, real exchange rate development with respect to economic fundamentals -also referred to as misalignments - could alter the expected gains of a given country from trade and investment integration over the medium-long run since more overvalued countries might experience persistent current account disequilibria implying costly reversion to equilibrium from the economic viewpoint (Gnimassoun and Mignon, 2015). This is even more critical for countries belonging to a monetary union as they barely can afford adjustment through the nominal exchange rate, involving that real exchange rate developments are obviously responsible for current account imbalances. Such a context triggers challenging political pressures as import-competing industries face a competitive disadvantage (Shatz and Tarr, 2017). Consequently, a deepening in economic integration also entails a trade-off between exchange rate regimes over time.

Second, even if an African currency union is foreseen since 1991 by Article 6 of the Abuja Treaty establishing the African Economic Community, the project is now postponed to an unknown date. Some attempts are worth to be noticed in only two out of the eight Regional Economic Communities[6] (ECOWAS and COMESA), as they moved one step forward into the promotion of intra-community trade by establishing regional clearinghouses, as a precondition for the launching of a single currency. As the debate remains open as to whether a fixed regime is a prerequisite for economic integration (see Arora and Jeanne, 2001), it is essential to determine if the whole

[4] Criteria that have been set up in at least five of the eight regional economic communities include budget deficit, public debt, annual inflation and foreign reserves.

[5] Export Processing Zones are defined as areas for export production.

[6] These eight are namely : Arab Maghreb Union (AMU) ; Economic Community of West African States (ECOWAS) ; East African Community (EAC) ; Intergovernmental Authority on Development (IGAD) ; Southern African Development Community (SADC) ; Common Market for Eastern and Southern Africa (COMESA) ; Economic Community of Central African States (ECCAS) ; Community of Sahel-Saharan States (CENSAD).

continent would benefit or not from the theoretical gains of a currency union in terms of economic integration (see Rose, 2000; Rose and Engel, 2002). This is primarily since the multiplicity of exchange rate arrangements across and within the Regional Economic Communities trigger currency conversion costs and market uncertainties that increase unrecorded trade, thus calling for macro-policy harmonization at the global level, underpinned by the monitoring of real exchange rate developments within each Regional Economic Community.

Third, the above-mentioned policy harmonization could be achieved through the establishment of a continental transparent institutional framework based on a somewhat political autonomy in domestic policy making (UNECA, 2010), i.e. a higher quality of institutions reflected for instance in the degree of democracy. Interestingly, a higher degree of democracy could result ex-post from participation to Foreign Trade Agreements (FTAs), as suggested by (Liu and Ornelas, 2014). The authors developed a theoretical model linking participation in FTAs with democracy, based on the hypothesis that the former appears as a commitment device helping in destroying future protectionists' rents in unstable democracies. The rationale behind is that rents are attractive to authoritarian groups which have lower incentives in monopolizing power when the country is part of an FTA and the cost of withdrawal from it is high. Empirically, the theoretical relationship is supported by investigations of 116 democracies over the period 1960-2007. On the other hand, as participation in FTAs aims at increasing exports, it becomes evident that impacts of democracy in terms of real exchange rate variations deserve far more nuanced and in-depth analysis. This is even more crucial since the quality of institutions determines both capital inflows to the domestic economy and total factor productivity, thus implying a Balassa-Samuelson type effect on exchange rates (Kinda, 2010; Furlan et al., 2015).

Contributing to the above-described context, this paper assesses whether a particular exchange rate regime performs better than the other in terms of limiting real exchange rate misalignments, by paying particular attention to participation in both trade and investment agreements, and the level of democracy in each considered country as well. Specifically, we hypothesize that real exchange rate misalignments should vary according to the type of exchange rate regime since the latter performs differently in terms of economic integration and quality of the institutions (democracy). In doing so, our contribution is threefold. First, while a wealth of literature has treated misalignments, democracy, and integration issues separately, we explicitly incorporate these aspects into the same model as part of the same underlying context driving macro-policies at the continent level. Second, we particularly assess whether participation in trade and investment agreements influences real exchange rate misalignments. Taking the participation in investment agreements into consideration appears critical as African countries have signed a total of 853 bilateral investment treaties since 1960, within which 173 are intra-African (UNECA, 2019). Capital flows resulting from these treaties are expected to significantly curb economic fundamentals such as productivity and net foreign assets in recipient countries over the long run (Baltabaev, 2014; Hong and Sun, 2011; Mendoza et al., 2009). Finally, we compute real exchange rate misalignments relying on various econometric techniques controlling for cross-sectional dependence on a sample of 30 African countries over the period 1980-2016, thus producing consistent and reliable estimates.

Our key findings are as follows: when considering the total number of bilateral investment agreements signed by each country, managed floating and crawling bands appear to be significantly more misaligned than their fixed counterparts irrespective of the level of democracy. Participation in a Regional Economic Community significantly reduces misalignments only under democratic and relatively democratic countries. These results show that the fixed exchange rate regime itself is not prone to more misalignments in the countries under study, as institutional quality and economic links with foreign partners critically matter. Furthermore, when distinguishing between African and international partners in investment agreements, results for democratic countries show that intermediate regimes outperform their fixed counterparts in terms of limiting misalignments when agreements with China and African partners are considered. Member countries of a currency union (ECCAS and WAEMU[7]) seem not to be more misaligned as a result of higher economic integration. However, in autocratic and relatively autocratic countries, fixed regimes are more efficient than alternative arrangements in coping with misalignments, especially when agreements with the United States and sub-regional neighbors are concerned. Membership in a Regional Economic Community is also found to significantly reduce the magnitude of misalignments. Overall, economic integration is a strong factor contributing to lower misalignments in any case. The extent of these misalignments seems to differ according to the level of democracy as democratic countries can afford intermediate regimes, while for weak democracies, fixed regimes are required to curb disequilibria.

The rest of the paper is organized as follows: Section II briefly presents a review of the literature; Section III describes the methodology, data, and the preliminary analysis; Section IV deals with estimates of the equilibrium exchange rates and misalignments according to exchange rate regimes; Section V analyzes the role of economic integration and democracy; Section VI performs the robustness analysis; and finally, Section VII concludes the paper.

II. Review of the Literature

This paper relates three issues that have so far been addressed separately in the literature. The first one is the still-on-debate connection between the exchange rate regime and economic integration. The well-established theory suggests that fixed regimes improve bilateral trade and thus economic integration (Fritz-Krockow and Jurzyk, 2004; Klein and Shambaugh, 2006; Nilsson and Nilsson, 2000; Qureshi and Tsangarides, 2012; Rose, 2000; Rose and Engel, 2002; Rose and Stanley, 2005). Sharing a currency is used to eliminate exchange rate uncertainty, improve price transparency and reduce transaction costs between pairs of countries, with a positive effect on bilateral trade. While this is the dominant theory, empirical evidence has also been found that fixed regimes are not necessarily a prerequisite for economic integration. The Canadian experience after the launch of the U.S-Canada FTA proved that the flexible regime has not impeded trade between the two countries (Arora and Jeanne, 2001). Linking exchange rate regimes to trade performance during crisis periods also revealed that the impact of the former depends on the anchor currency and whether the affected country is an exporting or importing country.

[7] West African Economic and Monetary Union.

Hence, intermediate regimes are more efficient in promoting trade between countries (Santana-Gallego and Pérez-Rodríguez, 2019).

The second aspect of the literature related to this paper is the link between exchange rate variability, democracy, and exchange rate regime choice. Evidence has been shown that political governance influences the choice of an exchange rate regime, as more democratic countries tend to avoid exchange rate fixity *de facto* because voters are on average more likely to have production-oriented behaviors, with a preference for monetary autonomy (Bearce and Hallerberg, 2011). This is even more plausible if the median voter belongs to a social group capable of influencing the public policy, while his preferences are oriented towards domestic production. In the same vein, most democratic countries are more likely to choose flexible regimes because they certainly face higher demand for redistribution policies and therefore need to maintain the use of monetary policy for stabilization purposes (Berdiev et al., 2012). The Latin American case showed that fixed arrangements are practiced in small economies in terms of trade volume and capital flows, while countries with more developed tradable sectors are also the most democratic countries that practice relative flexibility (Rodriguez, 2016). Built on this, a relationship between democratization and real exchange rates variations has been found significant for 31 developing countries, as the former is associated with increased exports and capital inflows, resulting in real appreciation through rising demand for the domestic currency (Furlan et al., 2015). The link with exchange rate misalignments is mentioned, though empirical assessment is overlooked.

Finally, the last strand of the literature related to this paper deals with the link between exchange rate misalignments and exchange rate regimes, without clearly establishing the superiority of an exchange rate regime over alternatives. Flexible regimes appear as more appropriate for developing countries since misalignments are less volatile (Hoffmann, 2007; Holtemöller and Mallick, 2013). This is consistent with the finding that fixed regimes are prone to more misalignments irrespective of the level of development (Coudert and Couharde, 2009). More specifically, fixed regimes are less efficient than intermediaries, but more than flexible ones in terms of limiting misalignments (Dubas, 2009), while fixed regimes appear to increase the average rate of real exchange rate appreciation in developing countries (Caputo, 2015). Finally, most flexible regimes are also useful when it comes to limiting misalignments resulting from short terms of trade shocks in oil and gas exporting countries (Raymond et al., 2017).

Based on the preceding, we consider hereafter the relationship between exchange rate regimes and misalignments, conditioned by the levels of economic integration and democracy. To that end, we first describe the methodology used for deriving exchange rate misalignments.

III. Methodology, Data, and Preliminary Analysis

We estimate the following baseline relationship between the RER and its fundamentals:

$$\ln REER_{it} = \alpha_1 . \ln TOT_{it} + \alpha_2 . \ln PROD_{it} + \alpha_3 . NFA\_GDP_{it} + \varepsilon_{it} \quad (1)$$

where $i = 1,...,30$; $t = 1980,...,2016$; *TOT* represents the terms of trade calculated as the relative price of exports in terms of import prices, the effect of which is hard to predict. Indeed, higher terms of trade could generate a pure spending effect reflected in a higher demand for all goods, leading finally to the real appreciation of the domestic currency. However, this spending effect may be supplanted by a substitution effect in favor of imported goods, which could instead generate real depreciation; *PROD* is the index for the relative productivity of the tradable goods sector in a given country, compared to its 30 principal trading partners, which increase is expected to appreciate the domestic currency in real effective terms, as salary equalization across sectors would translate into rising prices for non-tradable goods and finally pushing real appreciation; *NFA_GDP* is the net foreign asset position as a share of GDP, meant to result in the real appreciation of the national currency. All variables are taken in logarithms, except *NFA_GDP* expressed as a share of GDP.

Table 1 – Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Real Effective Exchange Rate	1,147	4.064069	4.536172	-24.50476	21.58857
Terms of Trade	1,133	4.729035	.3484683	3.063238	6.070567
Relative Productivity	1,147	.1977741	.1951319	.0165537	1.201957
Net Foreign Assets as a Share of GDP	1,043	.0829734	.2160715	-.8501158	1.370645

Note: Author's construction.

As a baseline analysis, we first estimate this relationship relying on the *Pooled Mean Group* estimator (PMG), based on an auto-regressive distributed lag (ARDL) specification of order 1 (0, 1,..., 1). This latter accounts for both short and long-run dynamics, as specified in the following equation:

$$\Delta \mathbf{y}_i = \boldsymbol{\phi}_i \mathbf{y}_{i,-1} + \mathbf{X}_i \boldsymbol{\beta}_\mathbf{i} + \sum_{j=0}^{1} \Delta \mathbf{X}_{i,-j} \boldsymbol{\delta}^*_{\mathbf{ij}} + \boldsymbol{\mu}_i \boldsymbol{\tau} + \boldsymbol{\varepsilon}_{it} \quad (2)$$

where $\mathbf{y}_i = (y_{i1}, y_{i2}, ..., y_{iT})'$ is the endogenous variable; $\boldsymbol{\phi}_i$ is the error-correction parameter, $\mathbf{X}_i = (X_{i1}, ..., X_{iT})'$ is the matrix of explanatory variables, and $\boldsymbol{\tau} = (1,1,...,1)'$ is a unit matrix. The underlying assumption of this method is coefficients equality for all countries in the long-run, while the intercept and coefficients of the short-run dynamics can vary from one country to another. The use of this estimator is justified by its ability to accurately estimate cointegration relationships without paying much attention to the order of integration of the series under study,[8] suffice to ensure that none of them is integrated of order 2. We complement this approach by the Cross-Section Augmented ARDL estimator (CS-ARDL), which consistently estimates coefficients associated to the main regressors in the presence of unobserved common factors (Chudik et al., 2016). The estimated equation is expressed as follows:

$$y_{it} = \boldsymbol{c}^*_{yi} + \sum_{l=1}^{p_y} \varphi_{il} y_{i,t-l} + \sum_{l=0}^{p_w} \boldsymbol{\beta}'_{il} x_{i,t-l} + \sum_{l=0}^{p_w} \boldsymbol{\psi}'_{il} \bar{\boldsymbol{z}}_{t-l} + \boldsymbol{e}^*_{it} \quad (3)$$

[8] Series can be integrated of order 0 or 1 without affecting the finite-sample properties of the estimator.

where c_{yi}^{*} are the fixed-effects which might be correlated with x_{it} the matrix of regressors and $\bar{z}_{t-l} = \left(\bar{y}_t, \bar{x}_t\right)'$ e_{it}^{*} are the cross-sectionally dependent error terms.

As a preliminary step, it is necessary to first run unit-root tests to check the order of integration of our series. To this end, we perform the unit root tests of Maddala and Wu(1999), Pesaran (2007), Im et al. (2003), and the Fisher-type unit test displayed in Table 2.

Table 2 – Unit Root Tests

	Maddala and Wu (1999)			Pesaran (2007)			Fisher-type unit-root test (Im-et al. (2003) Ha: At least one panel is stationary			
Variables in levels	*Lags*	No trend	Trend	*Lags*	No trend	Trend	*P*	*Z*	*L**	*Pm*
REER	1	0.435	0.045**	1	0.237	0.922	0.049**	0.095*	0.127	0.040**
	2	0.272	0.005**	2	0.931	0.997				
OPEN	1	0.456	0.000**	1	0.799	1.000	0.183	0.099*	0.092*	0.188
	2	0.014**	0.359	2	1.000	1.000				
GOVEXP	1	0.000**	0.001**	1	0.009**	0.677	0.000***	0.000***	0.000***	0.000***
	2	0.056**	0.058	2	0.996	1.000				
TOT	1	0.005**	0.580	1	0.127	0.127	0.029**	0.012**	0.008***	0.021**
	2	0.00**	0.000**	2	0.993	0.982				
PROD	1	0.405	0.528	1	0.745	0.999	0.056*	0.330	0.201	0.048**
	2	0.611	0.907	2	1.000	1.000				
NFA	1	0.047**	0.110	1	0.249	0.895	0.000***	0.002***	0.000***	0.000***
	2	0.248	0.953	2	1.000	1.000				
First differences	*Lags*	No trend	Trend	*Lags*	No trend	Trend	Ha: At least one panel is stationary			
D.TCR ; D.OPEN ; D.GOVEXP ; D.TOT; D.PROD ; D.NFA	1, 2	0.00**	0.00**	1, 2	0.00**	0.00**	0.000***			

Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively.

Since these tests conclude that both series are either stationary or integrated of order 1, we proceed to the next step by checking whether there is a cointegration relationship between our variables of interest. Indeed, misalignments determination is subject to the existence of a long-run relationship between the REER and its fundamental determinants. Hence, we carry out various including tests: Pedroni (1999), Westerlund (2007).

Table 3: Cointegration Tests

Pedroni (1999)			Westerlund (2007)		
Statistics	**Coefficient**	**Probability**	**Statistics**	**Coefficient**	**Probability**
Modified Philips-Perron t	1.587	0.056			
Philips-Perron t	-4.858	0.00	***Variance ratio***	-1.628	0.051
Augmented Dickey-Fuller t	-1.463	0.071			

Note: For both tests, the null is no cointegration for every country. The alternative hypothesis is cointegration for every country, for the Pedroni's test, while cointegration for at least some countries is assumed for the Westerlund's test.

The above-selected tests both reject the null hypothesis of no co-integration (see Table 3) thus allowing us to estimate the relationship between the REER and its fundamental determinants.

IV. Equilibrium Exchange Rates, Misalignments and Exchange Rate Regimes

We estimate equation (1) successively through the PMG and the PMG estimators previously described. Results presented in Table 4 show that an increase in terms of trade appreciates the domestic currency, as associated coefficients are both positive (0.094 and 0.038 respectively). An increase in relative productivity is positively related to the REER as expected (0.669 and 0.867, respectively). However, a rise in the net foreign assets position shows little effects on the REER as the coefficient with the PMG estimator is slightly significant (0.190), while it is found non-significant for the CS-ARDL estimator.

Table 4: Estimated Long-Term Relationship

Dependent Variable REER	PMG	CS-ARDL
Error Correction Term	-0.172***	-0.166***
	(0.031)	(0.026)
Terms of Trade	0.226**	0.038*
	(0.076)	(0.023)
Relative Productivity	0.458***	0.867*
	(0.049)	(0.454)
Net Foreign Assets	0.222	-14.31
	(0.113)	(14.30)
Intercept	0.736***	0.369***
	(0.117)	(0.008)
Pesaran (2015) test for weak cross-sectional dependence (H0)	CD = 6.20 p-value = 0.000	CD = 1.10 p-value = 0.272
Number of observations	888	870

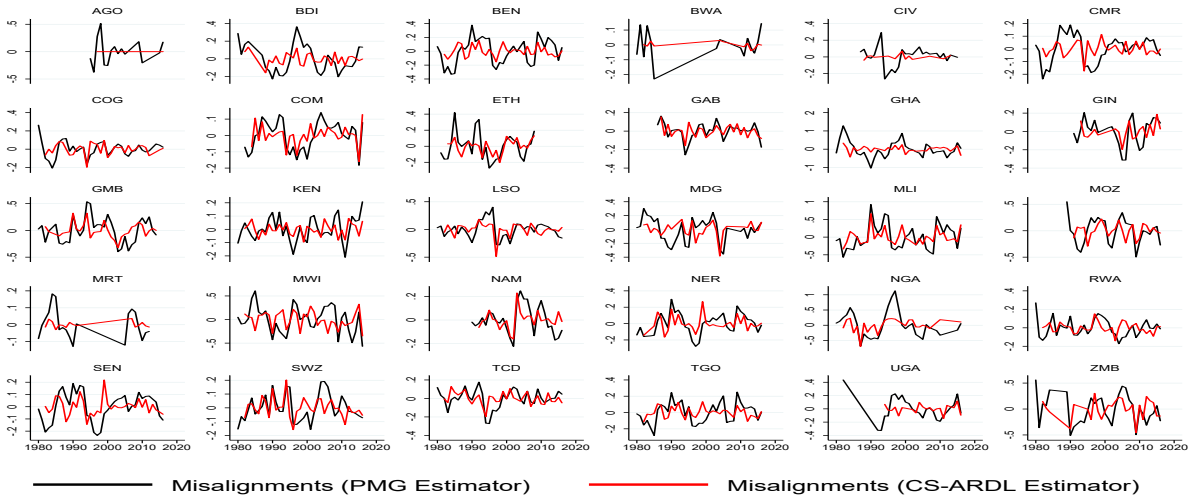
Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively. Standard errors are in brackets. Short-term dynamics are not displayed in this table since we are only interested in the long-term relationship.

Based on these results, equilibrium exchange rates are computed based on the following formula:

$$\tilde{y} = \mathbf{X}.\psi + \mu \tag{4}$$

where $\tilde{y}$ stands for the equilibrium exchange rate, $\psi = -\phi_i.\boldsymbol{\beta}_i$, and μ is the constant, as described in equations (2) and (3). These equilibrium exchange rates are depicted for each country in Figure 1, for comparison purposes. As both measures of the equilibrium exchange rate display similar paths, we proceed further by computing and comparing real exchange rate misalignments.

Figure 1 – Real Exchange Rate Misalignments



Note: Author's construction.

From the previous estimate we derive two measures of real exchange rate misalignments noted ε_{PMG} and $\varepsilon_{CS-ARDL}$, calculated as follows:

$$\varepsilon_k = y - \tilde{y}_k \qquad \text{with } k = PMG; CS-ARDL \tag{5}$$

We are interested in comparing the extent of misalignments according to the types of exchange rate arrangements defined by "Coarse Classification" of Ilzetzki et al. (2017) and summarized in Table 5. Precisely, the fixed exchange rate regime is considered as the reference and compared to both intermediate and flexible regimes using a mean comparison test robust to variance and sample size inequality between the two sub-samples.

Table 5 - Coarse Classification of Exchange Rates

"Coarse" categories	"Fine" categories	Exchange Rate Arrangements
Fixed Regimes	1	No separate legal tender Pre-announced peg or currency board arrangement Pre-announced horizontal band that is narrower than or equal to +/-2% De facto peg
Intermediate Regimes	2	Pre-announced crawling peg Pre-announced crawling band that is narrower than or equal to +/-2% De factor crawling peg De facto crawling band that is narrower than or equal to +/-2%
	3	Pre-announced crawling band that is wider than or equal to +/-2% De facto crawling band that is narrower than or equal to +/-5% Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time)
Flexible Regimes	4	Managed floating
	5	Freely floating
	6	Freely falling

Source: Ilzetzki et al. (2017)

It appears in Table 6 that fixed regimes are not more misaligned than their intermediate and flexible counterparts, irrespective of the misalignment's measure. Indeed, columns (3) and (6) reveal that the average difference between the absolute value of misalignments in fixed regimes and that of intermediate and flexible regimes is not significantly higher than zero. Moreover, from columns (2) and (5) it appears that this difference is instead lower than zero, indicating that for the countries under study, fixed regimes are, on average, less misaligned than other types of arrangements.

Table 6 - Mean Comparison Test on Absolute Average Values of Misalignments

	$\lvert\varepsilon_{PMG}\rvert$			$\lvert\varepsilon_{CS-ARDL}\rvert$		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Fixed vs both Intermediates and Flexibles	$Diff \neq 0$	$Diff < 0$	$Diff > 0$	$Diff \neq 0$	$Diff < 0$	$Diff > 0$
	0.000***	0.000***	1.000	0.000***	0.000***	0.999

Note: *** stands for significance at the 1% level. *Diff* is the difference between the average absolute value of misalignments in fixed regimes and alternatives arrangements (intermediates and flexibles). The null hypothesis is no difference in average between the compared sub-samples. P-values of the alternative hypothesis are reported in the table. The test is adjusted to account for unequal variances and unequal sample sizes between the sub-samples as well.

V. Role of Economic Integration and Democracy

As previous results suggest that there is no significant difference between average absolute misalignments in fixed regimes and alternative arrangements, we are now interested in the reasons for such effects. Therefore, we explicitly test our central hypothesis that real exchange rate misalignments should vary according to the type of exchange rate regime, as a result of various levels of economic integration and democracy, by specifying the following equation:

$$\left|\varepsilon_k\right|_{it} = \beta_{1j}.\text{Reg}_{\_j,it} + \beta_2.Level\_TNIA_{it} + \beta_{3j}\text{Reg}_{\_j,it} * Level\_TNIA_{it} + \lambda + \mu_i + \nu_{it} \quad (6)$$

where $\left|\varepsilon_k\right|$ is the absolute value of the misalignment index; $k = PMG, \text{CS-ARDL}$; λ is the intercept representing the value of the reference category; μ_i is the regional fixed-effects term representing the membership to one regional economic community (EMCCA, COMESA, WAEMU, SADC), and ν_{it} is the residual term.

Reg is the type of exchange rate regime as defined in table 5; $j = Intermediates, Flexibles$. These two categories of exchange rate regimes are compared to the fixed exchange rate regime represented by the constant in the

equation. The latter should be associated with the appreciation of the domestic currency and greater misalignments, all other things being equal. Indeed, within a fixed exchange rate regime, the domestic currency would gradually appreciate as long as domestic inflation is higher than in the country of the anchor currency (Coudert and Couharde, 2009; Goldfajn and Valdes, 1999). In this context, the domestic currency appreciation may end in currency overvaluation as it was already the case for the franc zone in 1994, or in Argentina in (2001, 2014), to name but a few. Hence, an increase in the REER is expected to result in increasing misalignments in the sense of an overvaluation.

$TNIA$ is a count variable indicating the total number of bilateral investment agreements linking specific countries with their key partners. These include African countries, the United States, China, France, the European Union, and the OECD. We expect an increase in this variable to generate real appreciation of the local currency through capital inflows, in a balance of payments perspective. Based on this, $Level\_TNIA$ is a categorical variable clustering the observations of $TNIA$ into four categories according to its quartiles. Expressly, detailed summary statistics indicated that the first, second and third quartiles are 5, 9 and 15, respectively. Therefore, the first defined category (considered as the reference one) includes countries part of 0 to 4 bilateral investment agreements ($TNIA \in [0,5[$), and the last group contains countries with more than 15 bilateral investment agreements ($TNIA \in [15,+\infty[$).

We further distinguish countries according to their level of democracy. The index for the level of democracy is the so-called POLITY2 variable from the Center for Systemic Peace. It ranks countries from the most democratic (score between 6 and 10), to the least democratic (score between -10 and -6), with an intermediate group called "anocracies,"[9] which are nearly democratic (score between 1 and 5) or whose regimes are still relatively authoritarian (score between -5 and 0). Theoretically, a country might prefer fixed exchange rate regimes to compensate for the lack of transparency in the political framework, since clarity of monetary policy and political transparency may be considered as substitutes (Broz, 2002). However, democracy has also been found negatively correlated with exchange rate volatility, particularly in emerging economies (Freeman et al., 2000; Hays et al., 2003), hence suggesting an inverse relationship between democratization and REER misalignments (Raymond et al., 2017). Consequently, we expect outcomes in terms of misalignments to vary according to the type of political regime.

Table 7 – Exchange Rate Regimes, Misalignments and Economic Integration

	Misalignments (PMG)		**Misalignments (CS-ARDL)**	
	Democratic and Relatively Democratic	*Autocratic and Relatively Autocratic*	*Democratic and Relatively Democratic*	*Autocratic and Relatively Autocratic*
	Exchange Rate Regimes			
Crawling Peg and bands	0.028	0.064**	0.015	-0.003
	(0.017)	(0.027)	(0.010)	(0.011)
Managed Floating and crawling bands	0.146***	0.059***	0.093***	0.039***
	(0.026)	(0.022)	(0.015)	(0.009)
Freely Floating	0.150***	0.206***	0.002	0.073***

[9] The Center for Systemic Peace's 2017 report states on page 30 that anocracies are only an intermediate category and not a separate form of governance.

	(0.036)	(0.032)	(0.021)	(0.012)
Freely Falling	0.157***	0.131***	0.219***	-0.019*
	(0.036)	(0.030)	(0.021)	(0.011)
Dual Market	0.021		0.010	
	(0.040)		(0.032)	
		Total Number of Investment Agreements (TNIA)		
TNIA [5 9[	0.156***	-0.038**	0.011	-0.003
	(0.015)	(0.017)	(0.009)	(0.007)
TNIA [9 15[	0.002	0.029	0.009	-0.011
	(0.029)	(0.018)	(0.017)	(0.008)
TNIA > 15	0.031	0.043**	0.005	0.014
	(0.020)	(0.021)	(0.011)	(0.008)
		Exchange Rate Regimes and Investment Agreements		
Crawling Peg and bands # TNIA [5 9[	-0.207***	0.001	0.011	0.006
	(0.032)	(0.033)	(0.018)	(0.013)
Crawling Peg and bands # TNIA [9 15[	0.022	-0.061*	0.020	0.004
	(0.044)	(0.033)	(0.026)	(0.013)
Crawling Peg and bands # TNIA > 15	0.003		-0.043**	
	(0.030)		(0.015)	
Managed Floating and crawling bands # TNIA [5 9[	-0.154***	0.015	0.035*	-0.027*
	(0.034)	(0.037)	(0.019)	(0.015)
Managed Floating and crawling bands # TNIA [9 15[	-0.119***	0.030	-0.089***	-0.038***
	(0.044)	(0.029)	(0.026)	(0.012)
Managed Floating and crawling bands # TNIA > 15	0.028	0.020	-0.050**	-0.060***
	(0.036)	(0.036)	(0.021)	(0.014)
Freely Falling # TNIA [5 9[	-0.106**	0.022	-0.146***	0.016
	(0.043)	(0.052)	(0.026)	(0.021)
Freely Falling # TNIA [9 15[	0.026	0.162*	-0.169***	
	(0.065)	(0.098)	(0.041)	
Freely Falling # TNIA > 15	-0.107**	0.196***	-0.150***	0.053***
	(0.047)	(0.042)	(0.027)	(0.017)
Freely Floating # TNIA > 15		0.070		0.043**
		(0.053)		(0.020)
		Regional Trade Agreements (Regional Fixed-Effects)		
EMCCA	-0.070**	0.009	0.004	0.004
	(0.031)	(0.023)	(0.018)	(0.009)
COMESA	0.012	0.001	-0.022**	-0.008
	(0.015)	(0.016)	(0.009)	(0.006)
WAEMU	-0.045***	0.065***	-0.022**	-0.004
	(0.017)	(0.019)	(0.010)	(0.007)
SADC	-0.077***	0.019	-0.035***	-0.010
	(0.015)	(0.019)	(0.009)	(0.007)
Constant	0.081***	0.059***	0.032***	0.030***
	(0.013)	(0.016)	(0.007)	(0.006)
Observations	*390*	*558*	*370*	*494*
R-squared	*0.486*	*0.474*	*0.476*	*0.548*
F Statistics	*17*	*24*	*15*	*11.87*
F Probability	*0.00*	*0.00*	*0.00*	*0.00*

Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively. Standard errors are in brackets.

The results presented in Table 7 are analyzed per block as follows. First, intermediate and flexible regimes are either more misaligned or not different than fixed exchange rate regimes, regardless of the level of democracy. Indeed, for democratic and relatively democratic countries, managed floating and crawling bands, freely floating and freely falling regimes are significantly more misaligned than their fixed counterparts (by 0.146, 0.150, and 0.167 respectively for the PMG-derived misalignment index; by 0.093 and 0.219 respectively for the ARDL-derived index). As for autocratic and relatively autocratic countries, crawling pegs and managed floating bands and crawling bands, freely floating and freely falling regimes are systematically more misaligned than fixed regimes (by 0.064, 0.059, 0.0206 and 0.131 respectively for the PMG-derived misalignment index; by 0.039, and 0.073 respectively for the ARDL-derived index). Second, we find mixed evidence of the benefit of bilateral investment agreement in limiting misalignments other things being equal, as coefficients associated to bilateral investment agreement levels (TNIA) are almost all non-significant or even slightly significant.

Nonetheless, the third part of the table interestingly shows the benefit of democracy and economic integration (bilateral investment agreements) in limiting misalignments for countries experiencing intermediate and flexible regimes. Specifically, for both index of misalignments, crawling pegs and bands, managed floating and crawling bands, and freely falling regimes are associated with negative coefficients, when combined with various levels of investment agreements. Regarding autocratic and relatively autocratic countries, coefficients related to interaction terms are almost all non-significant for the PMG-derived index, while only those referring to managed floating and crawling bands are found to be negative and significant for the ARDL-derived index. Finally, the fixed regional effects appear significant and negative only when considering democratic and relatively democratic countries, hence highlighting the benefit arising from the membership of regional economic communities for democratic countries.

Overall, these results fit in with the idea that democratic institutions improve the effectiveness of economic policy in the face of external shocks (Raymond et al., 2017). Hence, we show that the fixed exchange rate regime itself does not generate more misalignments in the countries studied, contrary to what has been suggested previously in the literature (see Dubas (2009); Coudert and Couharde (2009), as institutional quality and economic ties with foreign partners critically matter in explaining these misalignments.

VI. Robustness Analysis

To check for the robustness of the above analysis, we now compute another index for exchange rate misalignments, relying on the Dynamic Common Correlated Effects estimator (Chudik and Pesaran, 2015). The latter aims at estimating ARDL panel data models characterized by both the weak exogeneity of regressors, likely serial correlation between the unobserved common factors, and correlation between these unobserved factors and some regressors. These aspects are critical in the African case, considering that countries are likely to be affected in the same extent by global economy developments such as terms of trade or commodity prices shocks, which could then be reflected simultaneously by both changes in total trade, the net foreign assets position and the relative productivity in the open sector. With respect to this approach, we calculate the long-run equilibrium real exchange rate as follows:

$$\begin{cases} reer_{it} = c_{yi} + \phi reer_{i,t-1} + \beta_{0i}^{'} x_{it} + \beta_{1i}^{'} x_{i,t-1} + u_{it} \\ u_{it} = \gamma_i^{'} f_t + \varepsilon_{it} \\ \omega_{it} = \begin{pmatrix} x_{it} \\ g_{it} \end{pmatrix} = c_{\omega i} + \alpha_i reer_{i,t-1} + \Gamma_i^{'} f_t + v_{it} \end{cases} \quad \text{for } i = 1,2,...,31 \text{ and } t = 1980,...,2016 \qquad (7)$$

where $reer_{it}$ is the real effective exchange rate; c_{yi} and $c_{\omega i}$ stands for individual fixed effects; x_{it} and g_{it} are vectors of regressors respectively specific to unit i at time t and to the overall unit i; f_t is a vector of unobserved common factors; ε_{it} is the vector of idiosyncratic errors and ω_{it} is a vector of regressors allowing to distinguish between weakly and strictly exogenous regressors $(\alpha_i = 0)$, but also accounting for serial correlation with the

unobserved common factors. Variables included in ω_{it} are terms of trade, relative productivity in the open sector, the net foreign assets position, the openness degree of the economy and government expenditures.

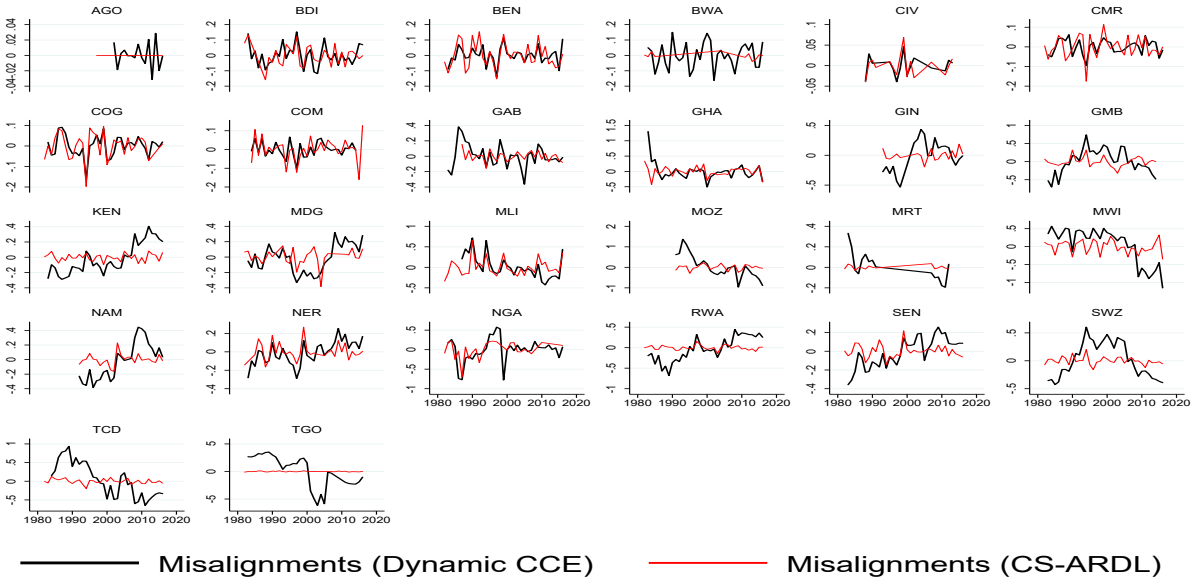
Table 8 – Estimate Equilibrium Exchange Rate (Dynamic Common Correlated Effects Estimator)

VARIABLES	DYNAMIC CCE
Error Correction term	-0.431***
	(0.056)
Terms of Trade	-0.098
	(0.218)
Relative Productivity	0.044
	(0.126)
Net Foreign Assets	-22.795
	(22.797)
Openness Degree of the Economy	-0.198***
	(0.058)
Government Expenditure	0.193***
	(0.055)
Intercept	2.296***
	(0.683)
Observations	835
R2	*0.501*
Pesaran (2015) test for weak cross-sectional dependence (H0)	*CD = -1.088*
	P-value = 0.277

Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively. Standard errors are in brackets. Short-term dynamics are not displayed in this table since we are only interested in the long-term relationship.

Results presented in table 8 are consistent with those in table 4 and theory as well since we find no stable relationship between real effective exchange rates and terms of trade, relative productivity, and net foreign assets successively. However, an increasing degree of openness of the economy is found to depreciate domestic currencies (Dufrénot and Yehoue, 2005; Candelon et al., 2007) and government expenditures instead appreciate the latter (0.193), provided that these expenditures mainly increase the demand for non-tradable goods, thus increasing their prices (Coulibaly and Gnimassoun, 2013; Mongardini and Rayner, 2009). Based on these results, real exchange rate misalignments are computed as described in equation (5) and compared with those obtained from the CS-ARDL estimator. As shown in Figure 2, accounting for both cross-sectional dependence and unobserved common factors induces significant differences in some cases such as in Botswana, Malawi, Chad or Togo.

Figure 2 – Real Exchange Rate Misalignments: Alternative Estimator



Note: Author's construction

In this context, it is even more critical to check whether previous results are robust to such variations. Therefore, we assess the misalignments' effects of economic integration according to the previously described levels of democracy. Specifically, we distinguish democratic and relatively democratic countries from autocratic and relatively autocratic countries, and estimate the following equation for each group:

$$\left|\varepsilon\right|_{it} = \beta_{1j}.\mathrm{Reg}_{j,it} + \alpha_1.TNIA^{k}_{it} + \beta_{2j}.\mathrm{Reg}_{j,it} * TNIA_{it} + \alpha_2.X_{it} + \gamma_h Regional\_Agree_h + \nu_{it} \quad (12)$$

where variables are defined as previously, but $TNIA^{k}_{it}$ is the number of bilateral investment agreements with one of the key foreign partners denoted $k=\{China, USA, European\ Union, Subregional\ Partner, African\ Partner\}$; $Regional\_Agree_h$ represents the regional economic community h to which each country i belongs. Finally, X_{it} is a matrix of control variables that accounts for both the domestic macroeconomic environment and developments in major economies, as these are likely to affect African countries exporting oil and commodities abroad. More specifically, we consider:

- the US output gap as a measure of the global economic cycle. Indeed, when the U.S. output gap is positive, the global economy is expected to expand as well. Then, tradable goods prices rise due to the rising demand in global markets, hence resulting in a sustainable RER depreciation and misalignments in small developing economies, all other things being equal;

- intra-annual volatility of OECD producer price index as a proxy for the volatility of the tradable goods' prices in world markets. This proxy is obtained by computing the standard deviation of OECD producer price index over the 4 quarters of each year between 1980 and 2015. The underlying assumption is that volatility in international markets is an additional cost to small economies, as they impact terms of trade and translate in higher misalignments.

- financial development, measured as the share of the money in circulation (M2) over GDP, as it is supposed to help to stabilize exchange rates by limiting the harmful effects of speculation (Dubas, 2009), but recent experience has instead shown that financial development could enhance speculative practices and trigger exchange rate instability. Therefore, we assume that financial development should have a positive effect on exchange rate misalignments.

Estimates' results for the case of democratic countries are presented in Table 9. In line with those in Table 7, fixed regimes are not more misaligned than alternative arrangements, except when compared with crawling pegs and bands. In this case, associated coefficients are almost all negative and significant at the 5% percent level (-0.032, -0.036, -0.47 and -0.068 respectively). Interestingly, looking at the interactions, we find mixed evidence of the benefit of alternative arrangements over the fixed regime, although intermediate regimes outperform their fixed counterparts in terms of limiting misalignments when agreements with China and African partners are considered. Moreover, considering the total number of bilateral investment agreements, managed floating and crawling bands significantly perform better than fixed regimes (-0.07). Similarly, countries that are members of EMCCA and WAEMU seem not to be more misaligned as a result of higher economic integration, mainly because of the currency union which involves exchange rate stability. Meanwhile, countries belonging to the SADC appear to be more misaligned, mainly on account of foreign exchange shortages and higher premiums in the parallel markets in some countries such as Angola. Finally, control variables appear with expected signs and significance in most of the specifications, as the US output gap reduces the extent of misalignments, while production volatility and financial development significantly increase the magnitude of misalignments.

Table 9 - Exchange Rate Regimes, Misalignments and Economic Integration: Democratic Countries

	TNIA with China	TNIA with the US	TNIA with one country of the EU	TNIA with at least one Sub Regional Neighbor	TNIA with at least one African Countries	TNIA Global
			Exchange Rate Regimes			
Crawling Peg and bands	0.006	-0.032*	-0.036**	-0.047***	0.022	-0.068**
	(0.020)	(0.018)	(0.017)	(0.018)	(0.019)	(0.026)
Managed Floating and crawling bands	0.121***	0.073***	0.072***	0.093***	0.153***	0.165***
	(0.020)	(0.021)	(0.019)	(0.024)	(0.027)	(0.040)
Freely Floating	0.000	0.065	0.065	0.077	0.105*	0.117**
	(0.049)	(0.051)	(0.049)	(0.051)	(0.056)	(0.054)
Freely Falling	0.487***	0.019	0.018	0.080**	0.062	0.067
	(0.031)	(0.034)	(0.028)	(0.035)	(0.044)	(0.060)
Dual Market	0.383***	0.398***	0.438***	0.454***	0.482***	0.466***
	(0.060)	(0.063)	(0.061)	(0.064)	(0.066)	(0.065)
			Bilateral Investment Agreements and Exchange Rate Regimes			
Trade Bilateral Investment (TNIA)	0.050**	0.046**	-0.084***	-0.057***	0.038***	0.003**
	(0.021)	(0.021)	(0.022)	(0.019)	(0.010)	(0.001)
Crawling Peg and bands # TBI	-0.162***	0.046		0.079***	-0.029**	0.004
	(0.029)	(0.058)		(0.023)	(0.012)	(0.003)
Managed Floating and crawling bands # TBI	-0.240***	0.046		0.040	-0.055***	-0.007**
	(0.041)	(0.046)		(0.025)	(0.013)	(0.003)
Freely Falling # TBI	-0.575***	0.584***		0.177***	-0.039**	0.003
	(0.058)	(0.064)		(0.033)	(0.017)	(0.004)
			Control Variables			
US Output Gap	-0.010**	-0.009**	-0.009**	-0.009**	-0.010**	-0.011***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Industrial Production Volatility (OECD)	0.010**	0.011**	0.011**	0.009**	0.009*	0.008*
	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.004)
Financial Development (M2/GDP)	0.001*	0.001	0.002***	0.001**	0.002***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

			Regional Trade Community (Fixed Regional Effects)			
EMCCA	-0.137***	0.055	0.039	0.025	0.024	0.010
	(0.038)	(0.037)	(0.035)	(0.037)	(0.043)	(0.041)
COMESA	-0.095***	0.004	0.006	0.010	0.006	0.040
	(0.023)	(0.020)	(0.019)	(0.023)	(0.034)	(0.029)
WAEMU	-0.084***	0.016	-0.065**	0.023	-0.079*	0.027
	(0.026)	(0.025)	(0.028)	(0.027)	(0.043)	(0.032)
SADC	0.021	0.053***	0.048***	0.073***	0.064**	0.114***
	(0.021)	(0.020)	(0.018)	(0.023)	(0.032)	(0.030)
Constant	0.108***	0.046*	0.114***	0.023	-0.012	-0.013
	(0.026)	(0.027)	(0.032)	(0.027)	(0.036)	(0.032)
Observations	344	344	344	344	344	344
R-squared	0.637	0.493	0.338	0.415	0.368	0.358

Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively. Robust Standard errors into brackets. "TNIA" stands for total bilateral investment agreements. US is the United States of America; EU designated the European Union. TNIA Global is the total number of bilateral investment agreements irrespective of the partner.

As for autocratic and relatively autocratic countries (Table 10), it now appears that crawling pegs and managed floating are performing better than fixed regimes when considering investment agreements with either US, EU, or African partners in the same sub-region. However, when looking at interactions, it clearly appears that fixed regimes are more efficient than alternatives in coping with misalignments, especially as far as agreements with the United States and sub-regional neighbors are concerned. Importantly, membership in an economic community is found to significantly reduce the magnitude of misalignments irrespective of the specification under consideration. Finally, control variables related to the global context come out with non-significant coefficients, as less democratic countries are also less engaged in international agreements.[10] Meanwhile, financial development is found to increase misalignments in any case, in line with previous results.

Table 10 - Exchange Rate Regimes, Misalignments and Economic Integration: Autocratic Countries

	TNIA with China	TNIA with the US	TNIA with one country of the EU	TNIA with at least one Sub Regional Neighbor	TNIA with at least one African Countries	TNIA Global
			Exchange Rate Regimes			
Crawling Peg and bands	-0.085*	-0.108**	0.011	-0.081*	0.084	0.126
	(0.049)	(0.043)	(0.037)	(0.044)	(0.056)	(0.077)
Managed Floating and crawling bands	0.035	-0.110***	-0.159***	-0.153***	0.006	0.002
	(0.025)	(0.022)	(0.025)	(0.030)	(0.010)	(0.002)
Freely Floating	0.101					
	(0.063)					
Freely Falling	-0.148*					
	(0.087)					
Dual Market	0.031					
	(0.074)					
			Bilateral Investment Agreements and Exchange Rate Regimes			
Trade Bilateral Investment (TNIA)		-0.110***	-0.159***	-0.153***	-0.006	-0.002
		(0.022)	(0.025)	(0.030)	(0.010)	(0.002)
Crawling Peg and bands # TBI		0.236***		0.139***	0.008	-0.001
		(0.044)		(0.038)	(0.017)	(0.006)
Managed Floating and crawling bands # TBI				0.130***	-0.005	0.002
				(0.038)	(0.014)	(0.004)
Freely Floating # TBI				0.108***	-0.027	-0.008
				(0.041)	(0.018)	(0.005)
Freely Falling # TBI		0.541***		0.138***	0.002	0.004
		(0.085)		(0.038)	(0.016)	(0.005)
			Control Variables			
US Output Gap	0.022	0.012	0.079***	0.022	0.014	0.033
	(0.035)	(0.036)	(0.030)	(0.032)	(0.037)	(0.053)
Industrial Production Volatility (OECD)	0.045	0.024	0.011	0.038	0.031	0.045
	(0.038)	(0.035)	(0.032)	(0.034)	(0.039)	(0.052)
Financial Development (M2/GDP)	0.191***	0.113***	0.230***	0.148***	0.211***	0.231***
	(0.052)	(0.042)	(0.041)	(0.043)	(0.060)	(0.069)
			Regional Trade Community (Fixed Regional Effects)			
EMCCA	-0.003***	-0.002**	0.001	-0.002**	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

[10] In our sample, the average number of investment agreements in autocratic and relatively autocratic countries is 10 and 15, respectively, while that of their democratic and relatively democratic counterparts is 11 and 21, respectively.

COMESA	-0.105**	0.054	0.054	-0.137***	-0.131***	-0.112**
	(0.044)	(0.038)	(0.034)	(0.034)	(0.042)	(0.044)
WAEMU	-0.071***	-0.110***	-0.041*	-0.078***	-0.086***	-0.076***
	(0.027)	(0.027)	(0.021)	(0.024)	(0.030)	(0.029)
SADC	-0.092**	-0.067*	-0.110***	0.039	-0.092**	-0.078*
	(0.043)	(0.039)	(0.034)	(0.036)	(0.045)	(0.044)
Constant	0.257***	0.259***	0.311***	0.246***	0.279***	0.271***
	(0.045)	(0.038)	(0.035)	(0.037)	(0.047)	(0.047)
Observations	442	442	442	442	442	442
R-squared	0.196	0.263	0.290	0.242	0.196	0.190

Note: ***, **, and * stand for significance at the 1%, 5% et 10% levels respectively. Robust Standard errors into brackets. "TNIA" stands for total bilateral investment agreements. US is the United States of America; EU designated the European Union. TNIA Global is the total number of bilateral investment agreements irrespective of the partner.

VII. Discussion and Policy Implications

This paper assessed the role of economic integration and democracy in explaining differences in real exchange rate misalignments across exchange rate regimes. To this end, we computed various indexes of misalignments using modern cointegration techniques, while accounting for cross-sectional dependence. We then compared the extent of these misalignments across exchange rate regimes, while paying attention to the role of economic integration through trade and investment agreements, and the level of democracy as well. Overall, our results show that managed floating and crawling bands appear to be significantly more misaligned than their fixed counterparts, irrespective of the level of democracy when considering the total number of bilateral investment agreements signed by each country. Participation in REC significantly reduces misalignments only when considering democratic and relatively democratic countries. Hence, the fixed exchange rate regime itself is not prone to more misalignments in the countries studied, as institutional quality and economic links with foreign partners critically matter. Furthermore, when distinguishing between African and international partners in investment agreements, results for democratic countries show that intermediate regimes outperform their fixed counterparts in terms of limiting misalignments when agreements with China and African partners are considered. Countries that are members of a currency union (EMCCA and WAEMU) seem not to be more misaligned as a result of higher economic integration. However, in autocratic and relatively autocratic countries, fixed regimes are more efficient than alternative arrangements in coping with misalignments, especially when agreements with the United States and sub-regional neighbors are concerned. Membership in an REC is, once again, found to significantly reduce the magnitude of misalignments.

To sum up, economic integration is a strong factor contributing to lower misalignments in any case. The extent of these misalignments seems to differ according to the level of democracy as democratic countries can afford intermediate regimes, while for weak democracies, fixed regimes are required to curb disequilibria. As an explanation, opening to trade and capital flows at the international level may increase the exposure of weak democracies to external shocks and a change in economic fundamentals, thus requiring a strong commitment in terms of exchange rate management. This makes them appear as "policy-takers" as opposed to "policy-makers" in deciding the direction of their monetary policy (Gnimassoun, 2017). The key economic policy implication arising from this analysis is that strong commitments within fixed regimes are critical for weak democracies in Africa contemplating to be part of the AfCFTA. While awaiting the implementation of the African single currency prescribed by the Abuja Treaty, strong democracies can still afford intermediate regimes with no adverse

repercussions in terms of exchange rate misalignments. Hence, our result implies that the quality of institutions in the broad sense, more than the type of the exchange rate regime, is called into question and should concentrate efforts from the authorities at first. This argument is reinforced by the high natural resource endowment in these countries, which has been found to be strongly correlated with weak governance and rent-seeking behaviors.

Appendices

Table AI – Countries in the Sample and their Participation to Bilateral Investment Agreements

Countries in the Sample	Total Bilateral Investment Agreement	African Partners	Partners in the Same Sub-region	Partners in the European Union	China	United-States
Angola	5	South Africa		United Kingdom; Germany; Italy	-	-
Benin	9	Ghana, Chad	Ghana	Belgium; United Kingdom; Germany	-	-
Botswana	5	-	-	Belgium; Germany	✓	-
Burundi	5	-	-	Belgium; Germany	-	-
Cameroon	15	Mauritius; Mauritania; Mali; Egypt;	-	Belgium; Italy; Germany; Romania	✓	✓
Chad	8	Egypt; Benin	-	Germany; Italy	-	-
Cote d'Ivoire	10	Ghana; Tunisia	Ghana	Belgium; Italy; Germany; Romania	-	-
Eswatini	3	-	-	Belgium; Germany	-	-
Ethiopia	29	Algeria; Egypt; Equatorial Guinea; Libya; South Africa; Tunisia	-	Austria; Denmark; Finland; Netherlands; Spain; Sweden; Belgium; Italy; Germany; France	✓	-
Gabon	15	Egypt	-	Spain; Portugal; Belgium; Italy; Germany	✓	-
Gambia	5	-	-	Netherlands; United Kingdom	-	-
Ghana	23	Benin; Burkina Faso; Côte d'Ivoire; Egypt; Guinea; South Africa	Benin; Burkina Faso; Côte d'Ivoire	United Kingdom; Netherlands; Italy; Germany; France;	✓	-
Guinea	13	Tunisia; Burkina Faso; Egypt; Ghana	Burkina Faso; Ghana	Germany; Italy	-	-
Kenya	9	-	-	Netherlands; Italy; Germany; France; United Kingdom	-	-
Lesotho	3	-	-	Germany; United Kingdom	-	-
Madagascar	11	South Africa	South Africa	Germany; France; Belgium; Sweden	-	-
Malawi	5	Egypt	-	Germany; Netherlands; Denmark	-	-
Mali	8	Algeria; Cameroon; Egypt; Tunisia	-	Germany; Netherlands	-	-
Mauritania	12	Tunisia; Cameroon	Tunisia	Belgium; Germany; Italy	-	-
Mozambique	17	Algeria; South Africa; Egypt	-	United Kingdom; Netherlands; Sweden; Italy; Germany; France; Finland	-	✓
Namibia	9	-	-	Austria; Finland; Spain; Netherlands; Italy; France; Germany	-	-
Niger	5	Algeria; Egypt; Tunisia	-	Germany	-	-
Nigeria	19	Algeria; Egypt; South Africa; Uganda	-	Finland; United Kingdom; Sweden; Spain; Netherlands; Germany; Italy	-	✓
Rwanda	6	South Africa	-	Germany; Germany	-	✓
Senegal	23	South Africa; Tunisia; Egypt	-	Sweden; United Kingdom; Netherlands; Italy; France; Germany	-	✓
Togo	4	Tunisia	-	Germany; Belgium	-	-
Uganda	11	Egypt; Nigeria; South Africa	-	Belgium; France; Germany; Italy; United Kingdom; Netherlands	-	-
Zambia	9	Egypt	-	Belgium; France; Germany; Italy; United Kingdom	-	-
Zimbabwe	22	South Africa; Egypt	South Africa	Italy; Austria; Croatia; France; Germany; United Kingdom; Sweden; Portugal; Netherlands; Iran	✓	-

Note: Author's construction based on data from the International Centre for the Settlement of Investment Dispute (ICSID) https://icsid.worldbank.org/fr/Pages/resources/Bilateral-Investment-Treaties-Database.aspx#a14

Table AII – Variables Definitions

Variables	Description	Source
Real effective exchange rate	Real effective exchange rate	World Development Indicators
Openness Degree of the Economy	Economic opening rates	World Development Indicators
Government Expenditure	Final government spending as a share of GDP.	World Development Indicators
Terms of Trade	Terms of trade, calculated as the relative price of exports in terms of imports prices	World Development Indicators
Relative Productivity	Relative productivity; calculated by the ratio of real GDP per capita of the domestic country to a weighted average of that of OECD countries.	World Development Indicators
Regime	Currency plans	Ilzetzki, Reinhart, and Rogoff (2017)
Financial Development (M2/GDP)	Financial development	World Development Indicators
US Output Gap	Output Gap of the United States of America	International Financial Statistics
Net Foreign Assets	Net foreign asset position as a share of GDP meant to result in the real appreciation of the national currency	World Development Indicators
Industrial Production Volatility (OECD)	OECD intra-annual producer price volatility	OECD Statistics Database.

Note: Author's construction

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