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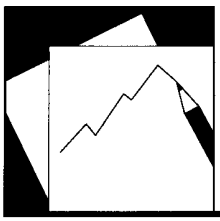

IMF Working Paper

De Jure versus *De Facto* Exchange Rate Regimes in Sub-Saharan Africa

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De Jure versus *De Facto* Exchange Rate Regimes in Sub-Saharan Africa

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Abstract

There are 22 countries in Sub-Saharan Africa (SSA) with floating exchange rate regimes, *de jure*. Some target the money supply or the inflation rate; others practice "managed floating." Statistical analysis on monthly data for the past decade reveals that in most cases these exchange rate regimes can be approximated surprisingly well by a soft peg to a basket dominated by the US dollar. The weight on the dollar appears to have fallen somewhat across the continent in the aftermath of the global financial crisis. Replicating the model with weekly data for The Gambia suggests that the focus on the dollar might be even more pronounced at higher data frequencies. While there might be strong arguments in favor of limiting exchange rate volatility in SSA countries, soft-pegging to the dollar does not appear to be the best fit for them, given the currency structure of their external trade and finance. The paper concludes by discussing some policy options for SSA countries with flexible exchange rates, in the context of an illustrative recent country case.

JEL Classification Numbers: F31, F33

Keywords: exchange rate regimes, fixed versus floating, *de jure* versus *de facto*, Sub-Saharan Africa

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I. INTRODUCTION

Since the end of the Bretton Woods system of fixed exchange rates in the early 1970s, the number of countries running *de jure* floating exchange rate regimes has steadily grown. In several influential papers that first circulated about a decade ago, economists Guillermo Calvo and Carmen Reinhart showed that in many of these countries, there is a discrepancy between *de jure* and *de facto*, and countries appear to actively limit fluctuations in the external value of their national monies. Calvo and Reinhart dubbed this behavior "fear of floating" and showed that it is rather pervasive across regions and levels of development. See Calvo and Reinhart (2002, 2005).

This paper investigates the "fear of floating" phenomenon in Sub-Saharan Africa (SSA). There are 22 SSA countries with floating exchange rate regimes, *de jure*. Some target the money supply or the inflation rate; others practice "managed floating." Sections II and III of this paper present statistical analysis on monthly data for the period 1999-2010 which reveals that in most cases these exchange rate regimes can be approximated surprisingly well by a soft peg to a basket dominated by the US dollar. The weight on the dollar appears to have fallen somewhat across the continent in the aftermath of the global financial crisis. Replicating the model with weekly data for The Gambia suggests that the focus on the dollar might be tighter at higher data frequencies. Section IV offers some explanations for why SSA countries might find floating so fearsome. It also shows that soft-pegging to the dollar is not optimal for SSA countries, given the currency structure of their external trade and finance. Finally, Section IV discusses a recent country case (The Gambia) in order to offer some policy alternatives for SSA countries with flexible exchange rates.

II. THE EMPIRICAL MODEL AND THE DATA

A. Model setup

A statistical model developed by Frankel and Wei (1994) and extended recently in Frankel and Wei (2008) offers a simple way to identify a country's *de facto* exchange rate regime. Intuitively, the two-step methodology they propose proceeds by tackling a couple of questions. First, is the country actually pursuing a floating or a fixed exchange rate regime? Second, if fixing, what currency (or basket of currencies) is the country fixing to? The regression equation to be estimated is identical to the one estimated in Frankel and Wei (2008). Taking The Gambia as an illustrative example, it is as follows:

$$\varepsilon_{GMD/CHF} = \beta_0 + \beta_1 EMP + \beta_2 \varepsilon_{USD/CHF} + \beta_3 \varepsilon_{EUR/CHF} + \beta_4 \varepsilon_{GBP/CHF} + \beta_5 \varepsilon_{JPY/CHF} + u, \qquad \textbf{(1)}$$

where $EMP \equiv \varepsilon_{GMD/CHF} - \frac{\Delta GIR}{RM}$, $GIR \equiv$ *gross international reserves*, $RM \equiv$ *reserve money*

$\varepsilon_{GMD/CHF}$ denotes the percentage change in the Gambian dalasi-Swiss franc exchange rate, and the three right-hand side variables are defined similarly. EMP stands for "exchange market pressure" and estimating β_1 would answer the first question above by telling us how flexible the domestic currency really is. EMP measures the market pressure on the domestic currency, as reflected either in the exchange rate or in the stock of gross international reserves (relative to reserve money). If there is a negative shock to the demand for domestic currency, we would expect it to show up either as exchange rate depreciation or as a *reduction* in international reserves. Either way, the EMP index would go *up*. The regression coefficient β_1 then measures the extent to which market pressure on the domestic currency is allowed to be reflected in the exchange rate (as opposed to international reserves). If the Gambian dalasi is completely pegged to a currency (or a basket of currencies), we would expect to find that β_1 is fairly low, that is, most shocks to demand for the currency are reflected in the stock of international reserves and not in the exchange rate. Vice versa, if the dalasi is freely floating, we would expect to find a much higher value for β_1 indicating that most exchange market shocks are absorbed by the exchange rate, rather than by the stock of international reserves.

Regarding $\varepsilon_{USD/CHF}$, intuitively, we want to look at the exchange rate between the domestic currency and some other *numéraire* currency and study its degree of co-movement with the exchange rate between the US dollar and the same *numéraire* currency. The Swiss franc is a good candidate for a *numéraire* for two reasons. First, it floats freely against the other major currencies. Second, it is unlikely to have a significant weight in any hypothetical currency basket pursued by the monetary authorities in SSA. If the Gambian dalasi (for example) really is floating against the dollar, there should be little to no correlation between the dalasi-franc and the dollar-franc exchange rates, and we expect to find $\beta_2 \approx 0$. If the dalasi is completely pegged to the dollar, the two exchange rates should be perfectly correlated, and we expect to find $\beta_2 \approx 1$. By including the euro, the British pound, and the Japanese yen, we allow for the possibility that the domestic currency could actually be pegged to one of these other major currencies rather than the dollar. We also allow for the possibility that the authorities could be stabilizing the external value of domestic money against a basket of these four currencies. In this case, β_2, β_3, β_4, and β_5 would measure the basket weights assigned to each. So these regression coefficients would answer the second question posed above ("If fixing, what currency (or basket of currencies) is the country fixing to?"). Finally, the constant β_0 captures the "drift" in the domestic currency, that is, its tendency to depreciate or appreciate over time.

B. Preliminary data analysis

Equation (1) will be estimated using monthly data over 1999-2010 for 22 SSA countries with floating exchange rate regimes, *de jure*, according to the IMF's Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER). According to the 2010 AREAER, two of these 22 countries were classified as having an inflation-targeting framework (Ghana and South Africa), while 14 countries were classified as targeting reserve money or some other monetary aggregate (Burundi, The Gambia, Guinea, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Seychelles[2], Sierra Leone, Tanzania, Uganda, and Zambia). São Tomé & Príncipe was also a money targeter before January 2010, when it pegged to the euro. In addition, five countries are classified as having a *de jure* floating or managed floating exchange rate regime: Angola, the Democratic Republic of Congo, Ethiopia, Liberia, and Mauritius. While all the classifications above come from the latest (2010) AREAER, I also reviewed the annual reports going back to 1999 to ensure that the 22 countries listed above have been consistently classified as *de jure* floaters over the entire period.

The main data source for most of the variables was the IMF's International Financial Statistics (IFS). Occasionally, I supplemented the IFS with data from country desks. For all results reported below, I dropped observations associated with an annual inflation rate higher than 25 percent.[3] This was done in order to restrict the data set only to periods during which the various countries had a credible and time-consistent monetary policy framework in place.[4]

Figure 1 reports some simple summary statistics on the 22 SSA floaters. It plots the standard deviation of the monthly change in gross international reserves (relative to reserve money) against the standard deviation of the monthly percentage change in each country's dollar exchange rate. Therefore, Figure 1 gives us some sense of the relative volatilities of the two variables which enter our "exchange market pressure" index. The downward-sloping line in Figure 1 has a slope of -1 and it divides the 22 SSA countries into two groups of equal size. Countries lying to the northeast of that line have volatile dollar exchange rates and volatile stocks of international reserves, perhaps because they are subject to larger external shocks. Countries lying to the southwest of that line are subject to smaller external shocks and have less volatile exchange rates and reserve stocks. The six countries highlighted in yellow in Figure 1 are classified by the IMF as resource intensive countries. Four of

[2] The Seychelles have been targeting reserve money only since November 2008.
[3] Specifically, I dropped month *t* if the annual inflation rate in month *t+12* was higher than 25 percent. Any such threshold inflation rate is bound to be somewhat arbitrary. Frankel and Wei (2008) use a threshold of 40 percent. This paper uses a tighter threshold of 25 percent because there have been countries in monetary unions in Sub-Saharan Africa with inflation rates occasionally exceeding 20 percent (due to external shocks). A country in a monetary union has a credible and time-consistent monetary policy. Therefore, an inflation rate above 20 percent (but below 25 percent) should be consistent with a credible and time-consistent policy framework.
[4] This is the reason why Zimbabwe was excluded from the list of floaters.

them (Angola, Nigeria, São Tomé & Príncipe, and Zambia) lie to the northeast of the downward-sloping blue line, and only two countries (Guinea and Sierra Leone) lie on the other side, with Sierra Leone being right on the border. This is an intuitively plausible result.

The upward-sloping blue line has a slope of unity and it divides the 22 countries into two groups. For the 20 countries lying above that line, gross international reserves are more volatile than their dollar exchange rate. For the two countries (South Africa and the Seychelles) lying below the line, the dollar exchange rate is more volatile than international reserves. This is suggestive evidence that here we might be dealing with a couple of countries with floating exchange rate regimes plus 20 countries showing signs of "fear of floating."

III. RESULTS

A. Peggers

In order to provide a gut check of the statistical model in equation (1), it was first estimated for the 20 SSA countries which are known to fix their exchange rates to a single currency or a basket of currencies. Tables 1 and 2 summarize the results. Table 1 focuses on the 16 countries pegging to the euro: the eight WAEMU countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo), the six CEMAC countries (Cameroon, the Central African Republic, Chad, the Republic of Congo, Equatorial Guinea, and Gabon), Cape Verde, and the Comoros. As expected, the estimated coefficient on EMP is zero and the estimated weight on the euro is unity for all 16 countries. Similarly, the basket weights on the other three currencies (USD, GBP, and JPY) are uniformly zero, and the adjusted R^2 is always unity.

Table 2 focuses on four countries in Southern Africa. The simple statistical model correctly identifies the pegs to the South African rand pursued by Lesotho, Namibia, and Swaziland, as well as the basket peg to the rand and the SDR (with roughly equal weights) pursued by Botswana. The EMP coefficients are once again all zeros and the adjusted R^2 is unity for the three rand peggers and 0.82 for Botswana.

B. Floaters

Yet another intuitive check comes from Table 3, which reports estimates of equation (1) for South Africa and the Seychelles, the SSA countries known to pursue floating exchange rate regimes. The estimated coefficients on EMP are 0.61 and 0.73 and both are highly statistically significant. Most of the external shocks hitting these two countries are absorbed by the exchange rate rather than

by international reserves. While less than unity, these are still impressively high coefficients. Frankel and Wei (2009) point out that even well-known floaters such as Australia and Canada have EMP coefficients of around 0.3-0.4. The estimated basket weights on the four major world currencies make little intuitive sense. For South Africa, the basket weights on the pound and the yen are insignificant, while the weight on the dollar is statistically significant but *negative*[5]. For the Seychelles, all four coefficients are statistically insignificant, and the weights on the dollar and the euro are negative.

C. SSA countries showing signs of "fear of floating"

Table 4 reports results from estimating equation (1) for the remaining 20 SSA countries with *de jure* floating exchange rate regimes. The estimated coefficient on EMP is almost always less than 0.3, with a single exception (Liberia), to be discussed below. The median EMP coefficient is 0.10. With the exception of Liberia, the estimated EMP coefficient equals or exceeds 0.2 in only four countries (Ethiopia, Guinea, Kenya, and Madagascar). Most shocks to the demand for domestic currency in these countries are absorbed by the stock of international reserves, rather than by the exchange rate. This is the opposite of what one would expect to find under floating exchange rate regimes. The estimated apparent basket weights on the US dollar are always statistically significant and typically very high, with a median of 0.82. In about half the countries, the apparent basket weight on the USD is not significantly different from unity. Six countries (Kenya, Madagascar, Mauritius, São Tomé & Príncipe, Tanzania, and Uganda) also appear to place statistically significant weights on the euro in managing the external value of their currencies. The regression coefficients on the pound and the yen are typically small and insignificant, so we cannot reject the null hypothesis that each equals zero. The constants are typically statistically significant, meaning there is a trend in all these currencies, with a median value of 0.6 percent per month, corresponding to an annual depreciation of around 7 percent. Finally, the overall statistical fit of the model is quite strong, with a median adjusted R^2 of 0.61. Overall, Table 4 suggests that all these currencies track the US dollar closely.

The case of Liberia merits a closer look, since the estimated EMP coefficient is 0.51, almost as high as South Africa's. Table 5 reveals that this result is driven entirely by the 1999-2004 period, which coincides with the country's civil war. If we focus instead on the last six years of our sample (2005-2010), then Liberia starts to look very similar to the other 19 countries in Table 4. The estimated coefficient on EMP is only 0.12, while the apparent basket weights on the dollar and the euro are 0.78 and 0.23, respectively, and both are statistically significant.

[5] This result, together with the positive and significant regression coefficient on the euro, might be driven by omitted variables. For example, one might imagine a global shock affecting the economies (and currencies) of South Africa and the Euro Area in one way and the US in the opposite way.

Table 6 is identical to Table 4, except that it restricts the country samples to 2005-2010 and it excludes Guinea (due to missing data). Table 6 is a balancing act between the need to have a sufficient number of data points for each country in order to estimate its exchange rate regime reliably and the potential criticism that the 12-year sample period of Table 4 stretches the credibility of the implicit assumption that each country's exchange rate regime stayed constant through the entire period. The estimated coefficient on EMP is typically less than 0.2, with six exceptions (Ethiopia, The Gambia, Kenya, Madagascar, Mauritius, and Zambia). The median EMP coefficient is again 0.10. The estimated apparent basket weights on the US dollar are always statistically significant, with a median of 0.78. Six countries (Kenya, Liberia, Mauritius, São Tomé & Príncipe, Tanzania, and Uganda) appear to be placing significant weights on the euro. The Gambia and Madagascar also appear to be placing significant weights on the British pound. The median adjusted R^2 is 0.73. Figure 2 provides a quick gut check of Table 6 by plotting the apparent basket weight on the US dollar against the EMP coefficient for these 19 countries. There is a strong negative relationship between the two regression coefficients, as expected: the higher the EMP coefficient, the lower the apparent weight on the dollar.

One might still criticize Table 6 for assuming that each country maintained its exchange rate regime without any changes at all for six years. It would also be interesting to see how exchange rate regimes have evolved over the last decade. Therefore, Figure 3 reports estimates from rolling 36-month regressions for the 16 SSA countries for which data were available for the entire 1999-2010 period.[6] (The data points on the far left corner in Figure 3 correspond to the 36-month period from January 1999 to December 2001.) To avoid clutter, the figure reports only the median apparent weight on the dollar, the median EMP coefficient, and the median adjusted R^2 for each 36-month period. For the decade between 1999 and end-2008, the median apparent USD weight varied between 0.8 and unity, the median EMP coefficient stayed below 0.10, and the median adjusted R^2 was around 0.7. There appears to have been a significant drop in the degree to which those 16 countries appear to key on the dollar over 2009-2010, possibly as a result of the global financial crisis. The median apparent weight on the USD dropped to around 0.7, while the median EMP coefficient increased above 0.1.

Table 7 performs an interesting experiment by estimating equation (1) with both monthly and weekly data for The Gambia over the exact same period (August 2007 – December 2010). The weekly data were obtained from the Central Bank of The Gambia and from the website *oanda.com*. The table suggests that "fear of floating" and the focus on the dollar is even more pronounced at higher data frequencies. The EMP coefficient drops from 0.34 in the monthly data to 0.14 in the

[6] Angola, the Democratic Republic of Congo, and Guinea were excluded from this exercise, due to missing data for certain sub-periods.

weekly data, while the apparent weight on the dollar increases from 0.38 in the monthly data to 0.90 in the weekly data.

IV. WHY IS FLOATING SO FEARSOME? IS THE US DOLLAR RIGHT FOR SSA? ARE THERE ALTERNATIVES?

A. Why is floating so fearsome?

The statistical analysis of Section III reveals that almost half the countries in Sub-Saharan Africa show signs of "fear of floating." Such behavior is puzzling not only because of the discrepancy between *de jure* and *de facto* exchange rate regimes, but also because SSA countries are typically buffeted by large and frequent external shocks (to the weather, the terms of trade, donor flows), which in theory necessitate more (rather than less) exchange rate flexibility.

Several interlocking factors underlie "fear of floating."[7] First, most SSA countries suffer from financial underdevelopment and in particular from pervasive liability dollarization (defined broadly to include foreign currencies other than the US dollar as well). There is a sizable currency mismatch on the balance sheets of domestic governments, banks, and non-financial companies. While assets are typically denominated in the domestic currency, the bulk of liabilities is denominated in a foreign currency (not necessarily the US dollar). A depreciating exchange rate increases the domestic-currency value of liabilities and eats into net worth. Therefore, in financially underdeveloped countries, depreciations are associated with financial distress or even bankruptcy, not with export-led growth, which is the benign outcome emphasized in textbook models. In published empirical work (see, for example, Hausmann, Panizza, and Stein (2001)), liability dollarization is the variable with the most robust statistical association to "fear of floating." Countries with a higher fraction of foreign-denominated liabilities are less likely to float.

Second, policymakers in developing countries often suffer from a chronic lack of credibility. They often have a poor track record in running monetary policy – perhaps they have resorted to the inflation tax too often in the past. Policymakers might be limiting exchange rate volatility as a way to re-gain credibility and in order to signal to financial markets their commitment to monetary discipline. Calvo and Reinhart (2002, 2005) have argued that access to global financial markets for developing countries is conditioned on currency stability. A sharp depreciation in the nominal exchange rate will often trigger an abrupt pause or even reversal of capital flows into the country (the so-called "sudden stop"). Empirically, such a reversal is associated with sharp adjustments in the current account (from deficit to surplus), output contractions, and collapses in credit ratings.

[7] This section borrows from Slavov and Rajan (2009).

Third, various empirical studies indicate that developing countries have higher exchange rate pass-through (ERPT) than developed ones. In other words, the general price level in these countries is more sensitive to exchange rate fluctuations, perhaps because they tend to be smaller and more open to trade. Given higher ERPT, the monetary authorities will pay special attention to the exchange rate and will try to stabilize it, even if the ultimate policy objective might be an inflation target. In other words, in a country with high exchange rate pass-through, an inflation-targeting framework might be observationally equivalent to "fear of floating."

Fourth, exchange rate stability promotes international trade, by reducing risk and transaction costs. This argument applies more to developing than to developed countries, since in the former financial markets are incomplete and underdeveloped, and there are few instruments available to hedge exchange rate risk. Furthermore, developing countries are typically more open and tend to rely on a strategy of export-led growth.

Finally, there are political economy reasons behind "fear of floating." Sharp fluctuations in the nominal exchange rate combined with sticky prices translate into unstable relative prices for traded versus non-traded goods. This might cause political disruption in countries in which both the traded and non-traded sectors are large and have powerful lobbies.

All things considered, one might wonder why the governments of so many SSA countries nevertheless maintain that their national currency is freely floating. One possible answer might be: in order to avoid the speculative attacks associated with an explicit commitment to a particular level of the exchange rate.

B. But isn't the weight on the US dollar excessive in Sub-Saharan Africa?

While stabilizing the external value of their monies might indeed be the best strategy for SSA countries, the focus on the US dollar does not seem to be the optimal fit for them, given the currency structure of their external finance and trade. Figure 4 plots the apparent weight on the dollar in the *de facto* exchange rate regimes of 19 SSA countries showing signs of "fear of floating" over 2005-2010 (from Table 6) against the weight on the USD in each country's public and publicly guaranteed debt in 2008 (the last year for which cross-country data are available). This figure has a couple of striking features. First, most countries lie above the 45-degree line, so the dollar's apparent weight in their exchange rate regime typically exceeds its debt weight (the only exceptions are The Gambia, Liberia, and Madagascar). Second, there is only a weak and tentative relationship between the currency

structure of debt and the exchange rate regime – witness the low R^2 and the low slope of the fitted OLS line.

Figure 5 plots the dollar's apparent weight in the *de facto* exchange rate regimes of the same countries over the same period (as Figure 4) against the share of US exports in each country's total exports in 2010. Every single country lies well above the 45-degree line, so the dollar's apparent weight in exchange rate regimes always exceeds the share of US exports in total exports. The relationship between the *de facto* exchange rate regime and the direction of trade is weak – with a very low R^2 and a low slope of the fitted OLS line.

A fair criticism of Figure 5 would be that by focusing on exports to the US, it dramatically understates the dollar's importance in global trade. Many countries around the world peg to the US dollar and many commodities are priced in dollars. Figure 6 tackles this criticism by looking at the behavior of nominal effective exchange rates (NEERs) during a recent episode of turbulence in international currency markets. Figure 6 presents the median NEER for the 20 SSA countries showing signs of "fear of floating" between December 2009 and September 2010. The spring of 2010 was indeed a turbulent period in currency markets. As the first round of the Greek debt crisis was playing out, the US dollar appreciated sharply against most other major currencies. By May 2010, both the euro and the pound were 10-15 percent weaker against the dollar than they were in December 2009 (see Figure 7). The NEER is based on trade weights, by definition. Therefore, if the dollar's weight in the *de facto* exchange rate regimes of these 20 countries equaled its trade weight (broadly defined to also include trading partners whose currencies are tracking the dollar), we would have expected the NEERs of these 20 SSA countries to stay roughly constant in the spring of 2010. Instead, the median NEER appreciated somewhat, by about 2 percent between December 2009 and June 2010. Since this was a period when the US dollar appreciated as well, Figure 6 offers some tentative evidence that the dollar's weight in the *de facto* exchange rate regimes of these 20 countries exceeded its trade weight, broadly defined.

While Figure 6 focuses on a particular recent episode, we get sharper results from a more systematic look at the behavior of the NEERs of these 20 countries. I computed the correlation coefficient between the monthly rate of change in the US NEER and the monthly rates of change of the NEERs of each of these 20 countries since January 2005. If the dollar's weight in the exchange rate regimes of these 20 countries equaled its trade weight (broadly defined), we would expect their NEERs to stay roughly constant over time, and therefore the correlation coefficients with the US NEER to be around zero. Instead, I found the correlation coefficients over 2005-2010 to be positive for 18 out of the 20 countries, and to be statistically significant (using a simple *t* test) for 13 out of the 20 countries. The median correlation coefficient was 0.48. These results indicate that the dollar's

weight in *de facto* exchange rate regimes exceeds its trade weight (broadly defined) for most of these 20 SSA countries.

C. Are there alternatives: an illustrative country case?

Ever since the end of the Bretton Woods system of fixed exchange rates in the early 1970s, the world's major currencies have fluctuated widely against one another. Figure 8 illustrates the tremendous volatility among the dollar, the euro, the pound, and the yen over the past four decades.[8] In a small open low-income country with imperfect and incomplete financial markets (like most SSA countries) the exchange rate is the single most important price in the economy, for reasons discussed above. However, most SSA countries have a fairly diversified direction of trade and financial flows. By tracking the US dollar so heavily, they expose themselves to fluctuations against the other major currencies. This creates volatility in *effective* exchange rates and leads to increased macroeconomic instability. Therefore, while it might still make sense for SSA countries to rely on floating exchange rate regimes as shock absorbers, it could also be a good idea for them to monitor broader baskets of exchange rates (rather than just the USD exchange rate) as a guide to forex market conditions.

A recent country case illustrates this last point. Between November 2008 and April 2010, the Gambian dalasi was very stable against the US dollar, trading in the narrow range between 26 and 27 dalasi per dollar. When the dalasi came under market pressure in the late spring and early summer of 2010, the depreciation was initially resisted by policymakers. The Central Bank of The Gambia (CBG) lost USD 22 million of international reserves between December 2009 and August 2010 (about 12 percent of its initial stock of reserves). The CBG's rationale for these interventions was the maintenance of orderly market conditions in the face of a supply shortfall in the market for US dollars because of a jump in the imported oil bill. However, the loss of international reserves and the eventual dalasi depreciation in the late spring and early summer of 2010 were also partially triggered by turbulence in international currency markets. Figure 7 shows the sharp depreciation of both the euro and the British pound against the US dollar in the spring of 2010.

Given the importance of the pound and the euro for The Gambia's economy (due to exports of tourist services and re-exports to Senegal, Mali, and Guinea-Bissau), a sounder alternative for the CBG (to tracking the dollar) could have been to allow the dalasi to depreciate somewhat against the USD and avoid the dramatic appreciation against the other two major currencies. Going forward, it would make sense for the CBG to keep its floating exchange rate as a shock absorber, but to also monitor a basket of exchange rates against the dalasi as a guide to market conditions when assessing whether it is necessary to intervene in the foreign exchange market. A logical question then is what

[8] Before 1999, the euro-dollar exchange rate was spliced with the German mark-US dollar exchange rate.

basket would make the most sense for the country? There are several plausible alternatives, but some are better than others.

First, the CBG could monitor a basket reflecting the currency structure of the interbank foreign exchange market in The Gambia. According to CBG data for the period 2007-2010, the dollar, the euro, and the pound claimed 63 percent, 24 percent, and 12 percent, respectively, of the trading volume in that market. The problem with these currency shares is that they are largely endogenous to the exchange rate regime. Banks tend to mostly trade in US dollars because they perceive (correctly) the CBG as tracking a basket dominated by the US dollar peg. These currency shares would shift immediately if the exchange rate regime itself changed.

Second, the CBG could monitor a basket reflecting the currency composition of The Gambia's external debt. Figure 4 then suggests, once again, a weight of around 50 percent on the US dollar. However, this approach is subject to the same criticism as the previous one: the currency structure of debt is endogenous to the exchange rate regime and would switch (albeit slowly) if the regime itself shifted.

Third, the CBG could monitor its exchange rate with the SDR, the IMF-maintained basket of currencies, as a reference. However, the currency composition of the SDR does not match the structure of either The Gambia's trade or its debt.[9] Furthermore, the SDR is not a real-world currency; it only exists as a unit of account, and the average Gambian is probably unaware of its existence. This would raise some communication, transparency, and credibility challenges for the authorities.

Fourth, the CBG could monitor a basket reflecting the currency composition of The Gambia's international trade. While data on invoice currency shares for The Gambia are lacking, some insight into the currency structure of trade is provided by data on currency deposits on shipment and collection basis. These are deposits made by traders with domestic commercial banks in order to either settle import bills or deposit earnings from exports (and re-exports). Therefore, they are the best evidence available about the currency structure of The Gambia's foreign trade. CBG data for 2010 indicate that 73 percent of these deposits were denominated in euros, 19 percent in dollars, and 8 percent in pounds. These data suggest monitoring a basket with a high weight on the euro.

Fifth and final, broader economic and political considerations could determine the right currency basket to monitor. The Gambia is highly integrated with Senegal. Most of its re-exports are

[9] In mid-August 2011, the SDR weights on the USD, EUR, GBP, and JPY were 41 percent, 38 percent, 11 percent, and 10 percent, respectively.

destined for Senegal, Mali, and Guinea-Bissau. All of these countries are participants in WAEMU, a currency union pegged to the euro. From this perspective, a heavy weight on the euro makes sense.

Figure 9 compares the actual dalasi-dollar exchange rate with an alternative hypothetical dalasi-dollar exchange rate based on a basket with weights of 73 percent on the euro, 19 percent on the dollar, and 8 percent on the pound (the fourth option suggested above). The initial value of that basket was set using the actual exchange rates from December 2009. As can be seen from the figure, with that euro-dominated basket, the dalasi would have depreciated against the USD to about 30.5 dalasi/dollar by May 2010, about 2 dalasi more than the depreciation that actually took place. There is no evidence that such a hypothetical time path for the dalasi-dollar exchange rate would have avoided altogether the heavy loss of international reserves that took place. However, there is no doubt that under this counterfactual scenario, the loss of reserves would have been smaller. If the CBG had monitored this alternative basket, it would have recommended against the forex market interventions in the late spring and early summer of 2010, and in favor of allowing market forces to depreciate the dalasi somewhat against the dollar.

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Figure 1: Volatility of gross international reserves versus volatility of dollar exchange rates for 22 SSA countries with *de jure* floating exchange rates (monthly data, 1999-2010)

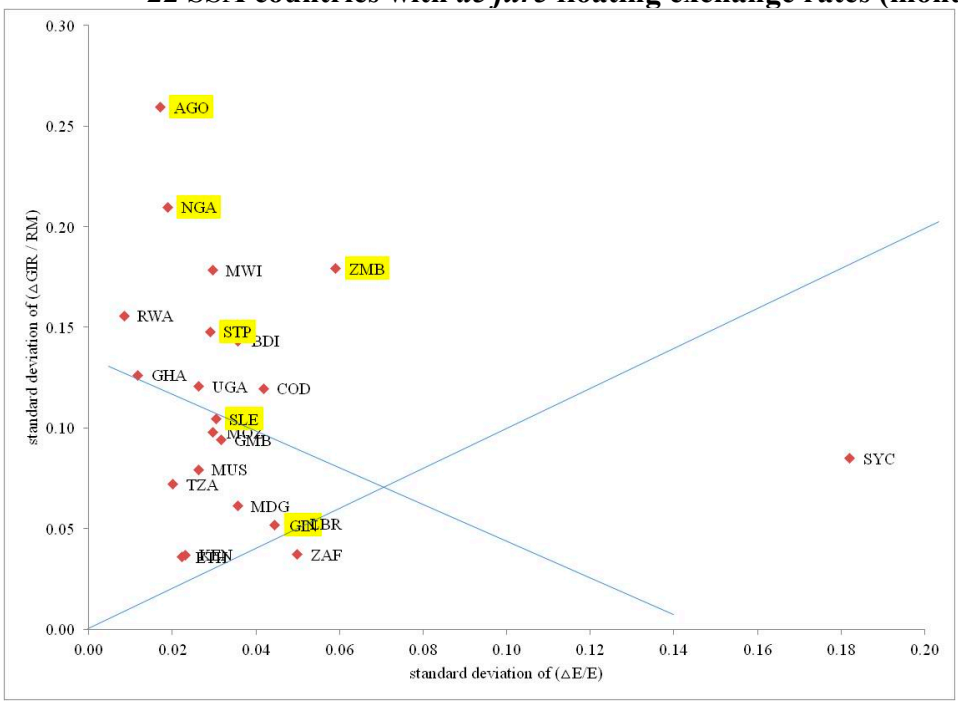


Figure 2: Apparent basket weight on USD versus regression coefficient on EMP for 19 SSA countries showing signs of "fear of floating" (monthly data, 2005-2010)

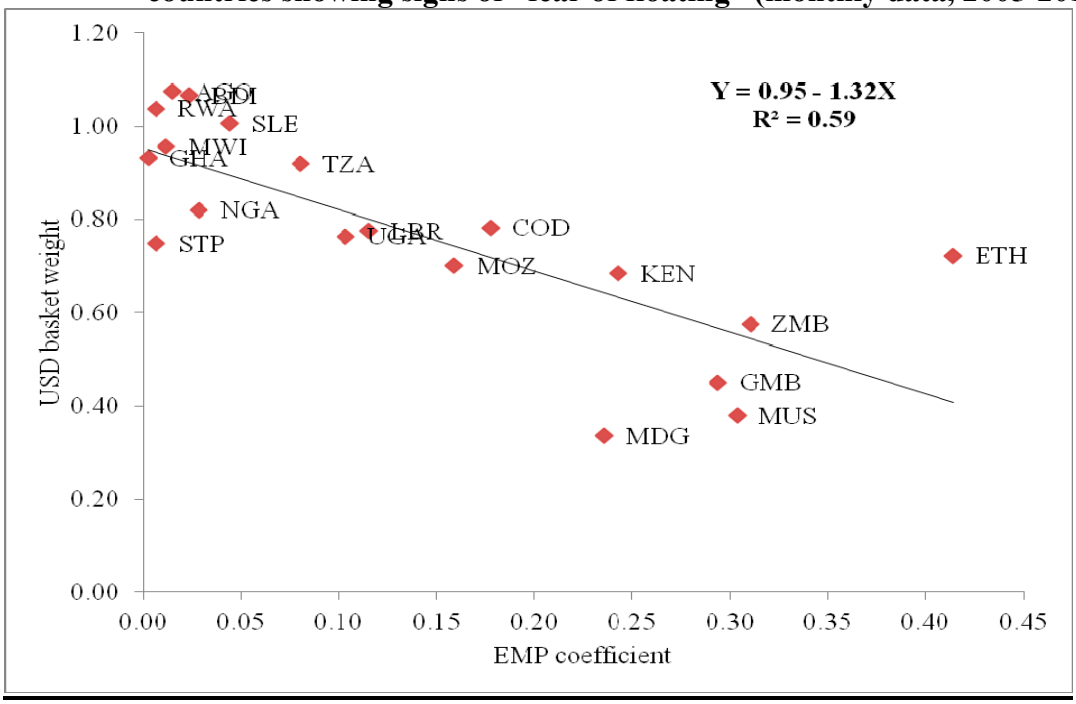


Figure 3: Median apparent weight on the US dollar, median EMP coefficient, and median adjusted R^2 from 36-month rolling regressions for 16 SSA countries showing signs of "fear of floating"

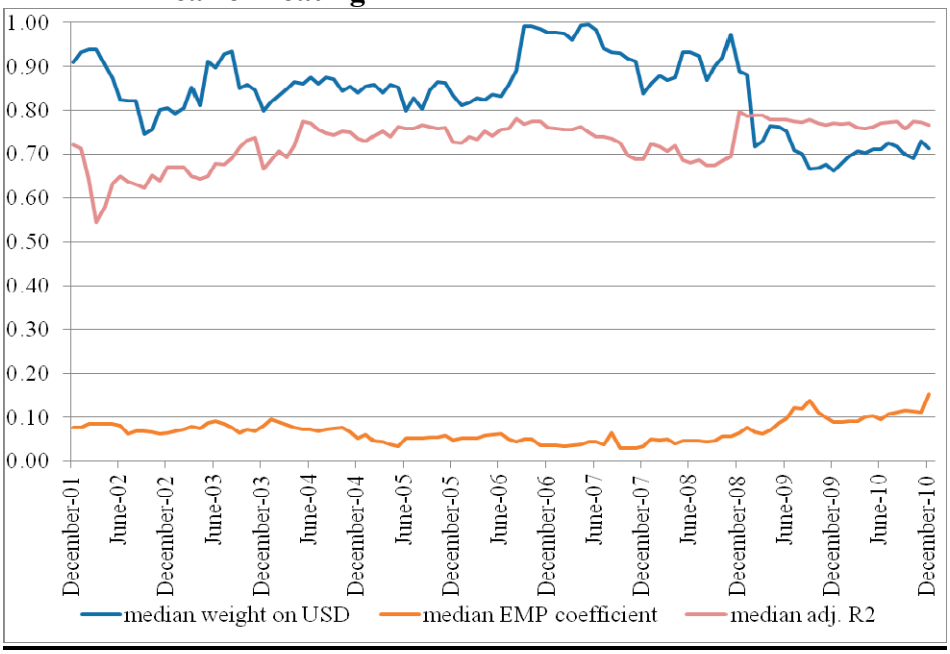
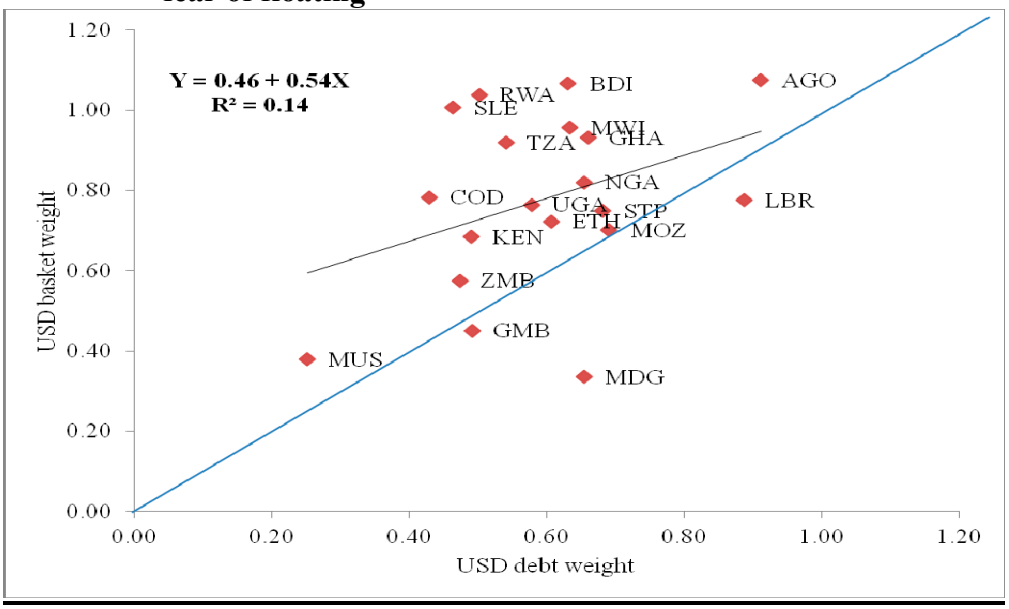
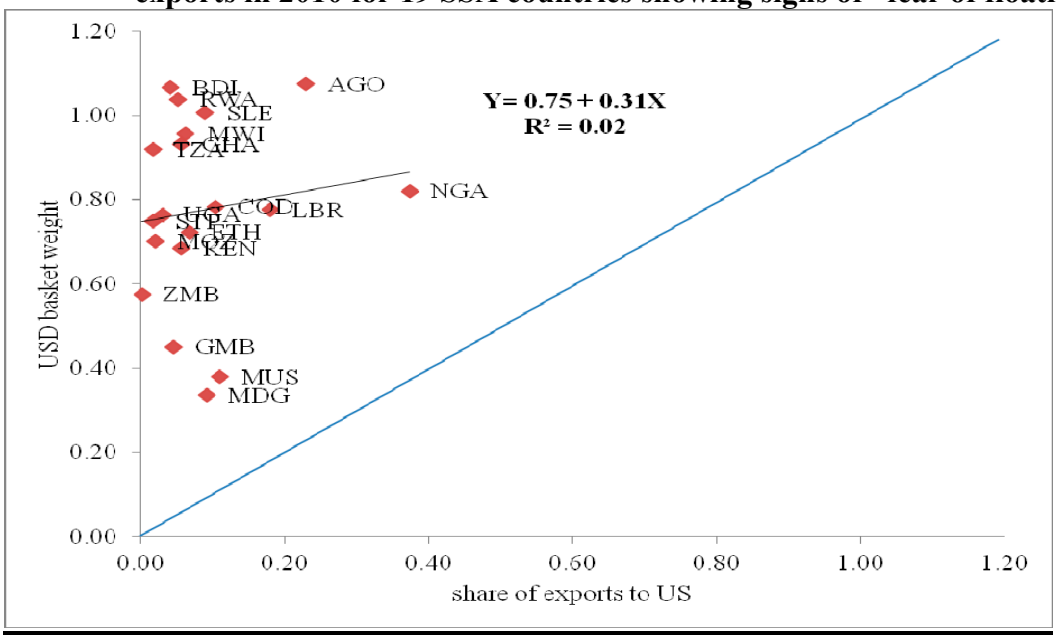


Figure 4: Apparent basket weight on USD over 2005-2010 versus weight of USD in country's public and publicly guaranteed debt in 2008 for 19 SSA countries showing signs of "fear of floating"



Source: The World Bank, Global Development Finance
Note: The USD debt weight includes 42 percent of SDR-denominated debt.

Figure 5: Apparent basket weight on USD over 2005-2010 versus share of US exports in total exports in 2010 for 19 SSA countries showing signs of "fear of floating"



Source: IMF, Direction of Trade Statistics

Figure 6: Median NEER for 20 SSA countries showing signs of "fear of floating" (December 2009 = 100)

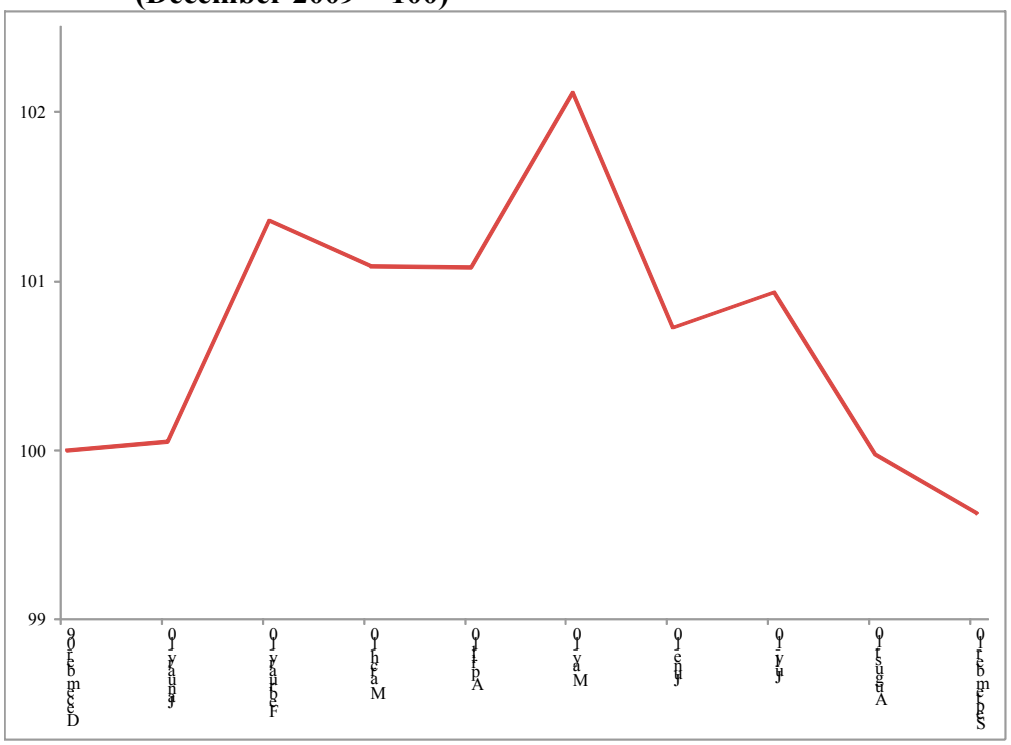
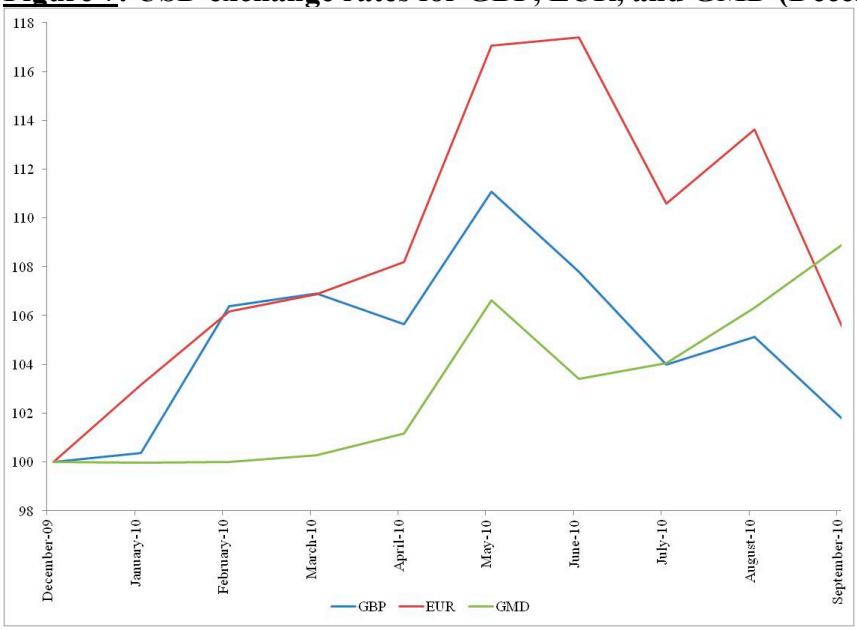


Figure 7: USD exchange rates for GBP, EUR, and GMD (December 2009 = 100)



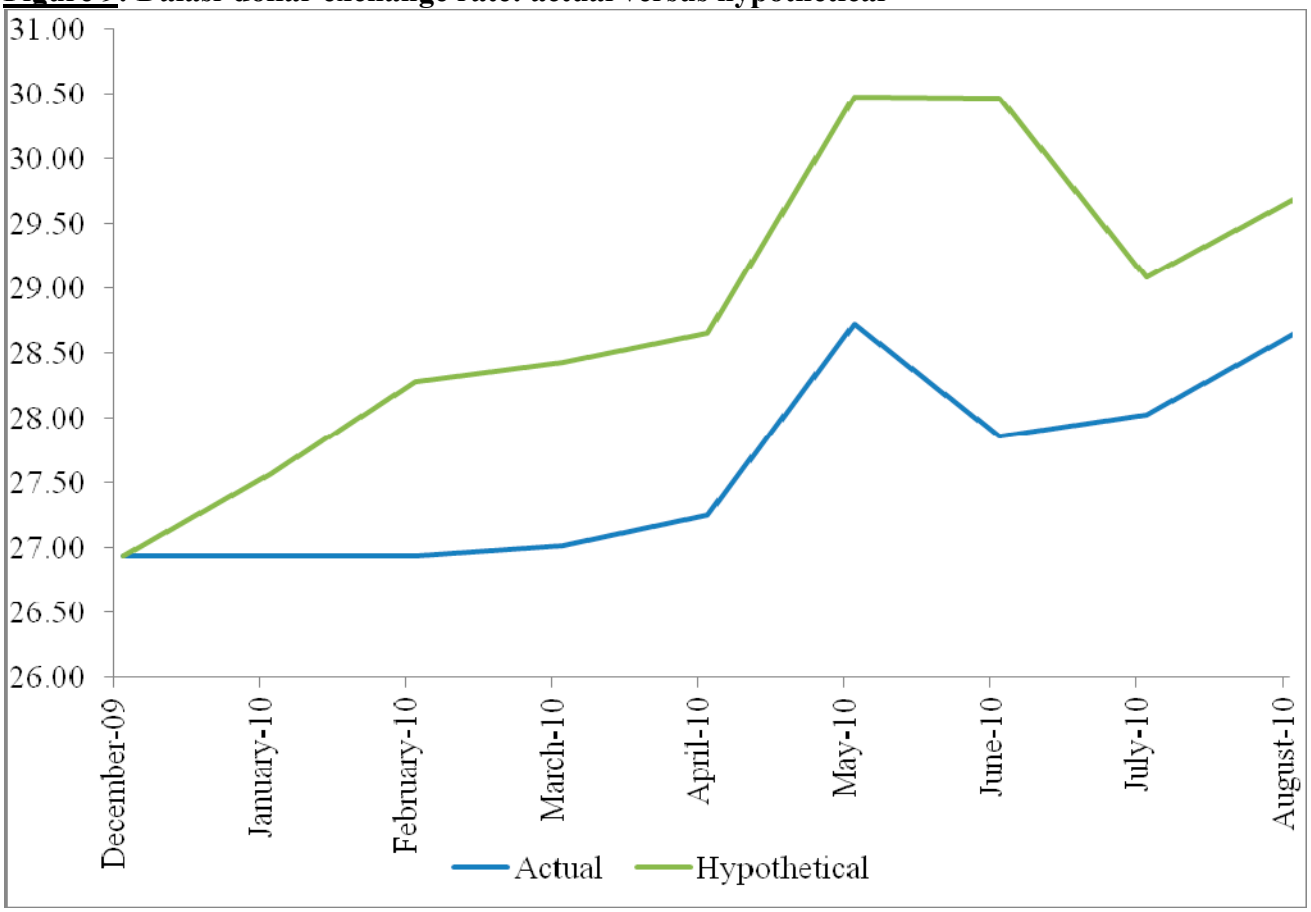
Source: IMF, International Financial Statistics

Figure 8: Euro-dollar, pound-dollar, and yen-dollar exchange rates (1971-2011, January 1971 = 100)

Source: IMF, International Financial Statistics

Note: Before 1999, the euro-dollar exchange rate was spliced with the German mark-US dollar exchange rate.

Figure 9: Dalasi-dollar exchange rate: actual versus hypothetical



Note: The hypothetical exchange rate is based on a basket with weights of 73, 19, and 8 percent on the EUR, USD, and GBP, respectively. The initial value of the hypothetical exchange rate was set to equal the actual exchange rate from end-December 2009.

Table 1: Peggers – part I

Country Variables	(1) BEN	(2) BFA	(3) CIV	(4) GNB	(5) MLI	(6) NER	(7) SEN	(8) TGO	(9) CMR	(10) CAF	(11) TCD	(12) COG	(13) GNQ	(14) GAB	(15) CPV	(16) COM
Constant	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**	**0.00**	**-0.00**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
EMP	**-0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-0.00**	**0.00**	**0.00**	**-0.00**	**0.00**	**-0.00**	**-0.00**	**-0.00**	**-0.00**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
$\varepsilon_{USD/CHF}$	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-0.00**	**0.00**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
$\varepsilon_{EUR/CHF}$	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****	**1.00*****
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
$\varepsilon_{GBP/CHF}$	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-0.00**	**0.00**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
$\varepsilon_{JPY/CHF}$	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-0.00**	**0.00**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Observations	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**143**	**144**	**144**
Adjusted R^2	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Notes: Columns (1)-(16) estimate equation (1) in the main text of the paper for 16 SSA countries. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 2: Peggers – part II

Country Variables	(1) LSO	(2) NAM	(3) SWZ	(4) BWA
Constant	**0.00**	**0.00**	**0.00**	**0.00***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*
EMP	**-0.00**	**-0.00**	**0.00***	**0.00****
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*
$\varepsilon_{USD/CHF}$	**-0.00*****	**-0.00*****	**-0.00*****	
	(0.00)	*(0.00)*	*(0.00)*	
$\varepsilon_{EUR/CHF}$	**0.00**	**0.00**	**0.00*****	
	(0.00)	*(0.00)*	*(0.00)*	
$\varepsilon_{GBP/CHF}$	**0.00*****	**0.00*****	**0.00***	
	(0.00)	*(0.00)*	*(0.00)*	
$\varepsilon_{JPY/CHF}$	**0.00*****	**0.00*****	**0.00*****	
	(0.00)	*(0.00)*	*(0.00)*	
$\varepsilon_{ZAF/CHF}$	**1.00*****	**1.00*****	**1.00*****	**0.60*****
	(0.00)	*(0.00)*	*(0.00)*	*(0.04)*
$\varepsilon_{SDR/CHF}$				**0.41*****
				(0.10)
Observations	**144**	**144**	**143**	**144**
Adjusted R^2	**1.00**	**1.00**	**1.00**	**0.82**

Notes: Columns (1)-(4) estimate a version of equation (1) in the main text of the paper. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 3: Floaters

Country / Variables	(1) ZAF	(2) SYC
Constant	**0.01*** **	**0.06*** **
	(0.00)	*(0.02)*
EMP	**0.61*** **	**0.73*** **
	(0.05)	*(0.14)*
$\varepsilon_{USD/CHF}$	**-0.24***	**-0.76**
	(0.12)	*(0.48)*
$\varepsilon_{EUR/CHF}$	**0.50*** **	**-0.79**
	(0.16)	*(0.50)*
$\varepsilon_{GBP/CHF}$	**0.11**	**0.66**
	(0.10)	*(0.53)*
$\varepsilon_{JPY/CHF}$	**0.10**	**0.04**
	(0.09)	*(0.33)*
Observations	**144**	**26**
Adjusted R^2	**0.74**	**0.79**

Notes: Columns (1)-(2) estimates equation (1) in the main text of the paper. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 4: SSA countries showing signs of "fear of floating"

Country / Variables	(1) AGO	(2) BDI	(3) COD	(4) ETH	(5) GMB	(6) GHA	(7) GIN	(8) KEN	(9) LBR	(10) MDG
Constant	0.00	0.01*	0.01*	0.01***	0.01***	0.01***	0.00	0.00***	0.01***	0.00*
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
EMP	0.02**	0.07*	0.16***	0.20*	0.16***	0.01	0.24***	0.25***	0.51***	0.25***
	(0.01)	*(0.04)*	*(0.04)*	*(0.11)*	*(0.04)*	*(0.01)*	*(0.08)*	*(0.05)*	*(0.08)*	*(0.07)*
$\varepsilon_{USD/CHF}$	1.05***	0.84***	0.63**	0.88***	0.59***	0.95***	0.68***	0.71***	0.44**	0.22**
	(0.10)	*(0.16)*	*(0.30)*	*(0.07)*	*(0.13)*	*(0.06)*	*(0.19)*	*(0.09)*	*(0.22)*	*(0.11)*
$\varepsilon_{EUR/CHF}$	0.01	0.19	-0.17	-0.18	0.06	-0.00	-0.03	0.40***	0.56**	0.52**
	(0.08)	*(0.15)*	*(0.20)*	*(0.24)*	*(0.22)*	*(0.07)*	*(0.28)*	*(0.09)*	*(0.23)*	*(0.24)*
$\varepsilon_{GBP/CHF}$	-0.09	0.03	0.07	0.02	0.11	0.04	-0.10	-0.06	-0.38***	0.16
	(0.07)	*(0.12)*	*(0.26)*	*(0.07)*	*(0.10)*	*(0.09)*	*(0.16)*	*(0.07)*	*(0.13)*	*(0.13)*
$\varepsilon_{JPY/CHF}$	-0.02	-0.08	0.15	-0.05	0.10	0.02	-0.06	-0.12*	0.08	0.10
	(0.08)	*(0.12)*	*(0.16)*	*(0.05)*	*(0.09)*	*(0.06)*	*(0.12)*	*(0.07)*	*(0.14)*	*(0.08)*
Observations	80	131	84	132	144	121	59	136	116	137
Adjusted R^2	0.81	0.42	0.42	0.70	0.60	0.88	0.59	0.77	0.62	0.52

Country / Variables	(11) MWI	(12) MUS	(13) MOZ	(14) NGA	(15) RWA	(16) STP	(17) SLE	(18) TZA	(19) UGA	(20) ZMB	Median
Constant	0.01***	0.00*	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.00**	0.01	0.01
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	
EMP	0.05***	0.10*	0.09***	0.04**	0.00	0.06	0.13***	0.08***	0.07***	0.10*	0.10
	(0.02)	*(0.06)*	*(0.03)*	*(0.01)*	*(0.01)*	*(0.04)*	*(0.03)*	*(0.03)*	*(0.02)*	*(0.06)*	
$\varepsilon_{USD/CHF}$	0.81***	0.45***	0.68***	0.88***	0.96***	0.79***	0.92***	0.88***	0.83***	0.91***	0.82
	(0.10)	*(0.09)*	*(0.12)*	*(0.08)*	*(0.05)*	*(0.10)*	*(0.10)*	*(0.09)*	*(0.08)*	*(0.31)*	
$\varepsilon_{EUR/CHF}$	0.10	0.46**	0.05	-0.10	0.10	0.55**	-0.08	0.30**	0.38**	0.45	0.10
	(0.25)	*(0.19)*	*(0.18)*	*(0.09)*	*(0.11)*	*(0.23)*	*(0.13)*	*(0.15)*	*(0.18)*	*(0.41)*	
$\varepsilon_{GBP/CHF}$	0.09	0.12	0.05	0.17	0.06	-0.01	-0.06	0.01	-0.06	0.18	0.04
	(0.12)	*(0.12)*	*(0.14)*	*(0.20)*	*(0.08)*	*(0.14)*	*(0.10)*	*(0.07)*	*(0.10)*	*(0.25)*	
$\varepsilon_{JPY/CHF}$	0.09	0.09	0.14*	0.04	-0.01	-0.05	-0.05	-0.06	-0.14*	-0.24	-0.02
	(0.10)	*(0.07)*	*(0.08)*	*(0.07)*	*(0.05)*	*(0.11)*	*(0.09)*	*(0.06)*	*(0.07)*	*(0.27)*	
Observations	125	144	144	141	96	116	144	144	144	125	132
Adjusted R^2	0.52	0.60	0.51	0.80	0.89	0.56	0.61	0.75	0.61	0.30	0.61

Notes: Columns (1)-(20) estimate equation (1) in the main text of the paper for 20 SSA countries. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 5: Liberia

Country Independent variables	(1) LBR 1999-2000	(2) LBR 1999-2004	(3) LBR 2005-2010
Constant	**0.01***	**0.01**	**0.01***
	(0.00)	*(0.01)*	*(0.00)*
EMP	**0.51***	**0.74***	**0.12**
	(0.08)	*(0.10)*	*(0.06)*
$\varepsilon_{USD/CHF}$	**0.44**	**0.64**	**0.78***
	(0.22)	*(0.38)*	*(0.16)*
$\varepsilon_{EUR/CHF}$	**0.56**	**0.07**	**0.23**
	(0.23)	*(0.52)*	*(0.13)*
$\varepsilon_{GBP/CHF}$	**-0.38***	**-0.59**	**-0.13**
	(0.13)	*(0.40)*	*(0.12)*
$\varepsilon_{JPY/CHF}$	**0.08**	**0.21**	**0.09**
	(0.14)	*(0.18)*	*(0.13)*
Observations	**116**	**48**	**68**
Adjusted R^2	**0.62**	**0.75**	**0.73**

Notes: Columns (1)-(3) estimate equation (1) in the main text of the paper. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 6: SSA countries showing signs of "fear of floating": 2005-2010

Country / Variables	(1) AGO	(2) BDI	(3) COD	(4) ETH	(5) GMB	(6) GHA	(7) KEN	(8) LBR	(9) MDG	(10) MWI
Constant	**0.00**	**0.00**	**0.01**	**0.01****	**0.00**	**0.01*****	**0.00***	**0.01*****	**0.00**	**0.01*****
	(0.00)	*(0.00)*	*(0.01)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
EMP	**0.02***	**0.02***	**0.18****	**0.41****	**0.29*****	**0.00**	**0.24*****	**0.12****	**0.24*****	**0.01**
	(0.01)	*(0.01)*	*(0.07)*	*(0.20)*	*(0.09)*	*(0.01)*	*(0.08)*	*(0.06)*	*(0.07)*	*(0.01)*
$\varepsilon_{USD/CHF}$	**1.07*****	**1.07*****	**0.78****	**0.72*****	**0.45****	**0.93*****	**0.68*****	**0.78*****	**0.34***	**0.96*****
	(0.11)	*(0.08)*	*(0.32)*	*(0.16)*	*(0.20)*	*(0.10)*	*(0.17)*	*(0.16)*	*(0.18)*	*(0.07)*
$\varepsilon_{EUR/CHF}$	**0.01**	**0.06**	**-0.11**	**-0.25**	**-0.11**	**-0.01**	**0.49*****	**0.23***	**0.43**	**0.03**
	(0.08)	*(0.07)*	*(0.22)*	*(0.32)*	*(0.22)*	*(0.07)*	*(0.11)*	*(0.13)*	*(0.30)*	*(0.06)*
$\varepsilon_{GBP/CHF}$	**-0.10**	**0.02**	**0.26**	**0.03**	**0.21***	**0.09**	**-0.10**	**-0.13**	**0.28***	**-0.01**
	(0.07)	*(0.07)*	*(0.39)*	*(0.12)*	*(0.11)*	*(0.10)*	*(0.09)*	*(0.12)*	*(0.15)*	*(0.05)*
$\varepsilon_{JPY/CHF}$	**-0.03**	**-0.12****	**0.08**	**-0.11**	**0.03**	**0.01**	**-0.09**	**0.09**	**-0.03**	**0.03**
	(0.09)	*(0.06)*	*(0.24)*	*(0.12)*	*(0.14)*	*(0.10)*	*(0.14)*	*(0.13)*	*(0.10)*	*(0.05)*
Observations	**72**	**66**	**50**	**60**	**72**	**72**	**64**	**68**	**72**	**67**
Adjusted R^2	**0.81**	**0.88**	**0.48**	**0.62**	**0.63**	**0.86**	**0.71**	**0.73**	**0.59**	**0.90**

Country / Variables	(11) MUS	(12) MOZ	(13) NGA	(14) RWA	(15) STP	(16) SLE	(17) TZA	(18) UGA	(19) ZMB	Median
Constant	**0.00***	**0.01****	**0.00**	**-0.00**	**0.01****	**0.01*****	**0.00**	**0.01***	**0.01**	**0.01**
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	
EMP	**0.30*****	**0.16*****	**0.03***	**0.01**	**0.01**	**0.04****	**0.08***	**0.10*****	**0.31*****	**0.10**
	(0.05)	*(0.06)*	*(0.02)*	*(0.01)*	*(0.03)*	*(0.02)*	*(0.04)*	*(0.03)*	*(0.11)*	
$\varepsilon_{USD/CHF}$	**0.38*****	**0.70*****	**0.82*****	**1.04*****	**0.75*****	**1.01*****	**0.92*****	**0.76*****	**0.58****	**0.78**
	(0.10)	*(0.21)*	*(0.10)*	*(0.03)*	*(0.15)*	*(0.06)*	*(0.13)*	*(0.13)*	*(0.25)*	
$\varepsilon_{EUR/CHF}$	**0.35****	**-0.04**	**-0.08**	**0.05**	**0.46***	**-0.05**	**0.38****	**0.40****	**0.60**	**0.05**
	(0.14)	*(0.23)*	*(0.13)*	*(0.08)*	*(0.24)*	*(0.07)*	*(0.17)*	*(0.19)*	*(0.37)*	
$\varepsilon_{GBP/CHF}$	**-0.03**	**0.12**	**0.30**	**-0.01**	**0.04**	**-0.01**	**0.03**	**0.02**	**0.00**	**0.02**
	(0.09)	*(0.17)*	*(0.26)*	*(0.05)*	*(0.18)*	*(0.06)*	*(0.08)*	*(0.13)*	*(0.24)*	
$\varepsilon_{JPY/CHF}$	**0.13**	**0.19**	**0.04**	**-0.02**	**0.11**	**-0.04**	**-0.12**	**-0.16**	**-0.17**	**-0.02**
	(0.09)	*(0.12)*	*(0.11)*	*(0.03)*	*(0.17)*	*(0.05)*	*(0.09)*	*(0.10)*	*(0.18)*	
Observations	**72**	**72**	**72**	**24**	**44**	**72**	**72**	**72**	**72**	**72**
Adjusted R^2	**0.73**	**0.48**	**0.81**	**0.99**	**0.70**	**0.87**	**0.74**	**0.62**	**0.56**	**0.73**

Notes: Columns (1)-(19) estimate equation (1) in the main text of the paper for 19 SSA countries. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

Table 7: The Gambia: monthly versus weekly data for August 2007 – December 2010

Country Independent variables	(1) GMB monthly	(2) GMB weekly
Constant	**0.01**	**0.00**
	(0.00)	*(0.00)*
EMP	**0.34*** **	**0.14** **
	(0.10)	*(0.07)*
$\varepsilon_{USD/CHF}$	**0.38**	**0.90*** **
	(0.24)	*(0.15)*
$\varepsilon_{EUR/CHF}$	**-0.16**	**0.06**
	(0.26)	*(0.13)*
$\varepsilon_{GBP/CHF}$	**0.21**	**-0.13**
	(0.15)	*(0.09)*
$\varepsilon_{JPY/CHF}$	**0.06**	**-0.08**
	(0.17)	*(0.09)*
Observations	**41**	**178**
Adjusted R^2	**0.62**	**0.56**

Notes: Columns (1)-(2) estimate equation (1) in the main text of the paper. Robust standard errors are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.