

Foreign Exchange Crises, International Currency Exposure and Elections

Etienne Farvaque*

Eiji Fujii†

Franck Malan‡§

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Abstract

If democracies are more prone to currency crises, how does this impact incumbents' electoral fortunes? This paper hypothesizes, (i), that the relation between crises and elections is related to the length and severity of the economic consequences of the currency crises, which in turn, (ii), depends on the degree of mismatch between a country's trade relations and its international indebtedness. A mismatch index is thus computed for 48 Middle and Low Income Countries over the period 1976-2014, and the evolution of the mismatch over time is analyzed. The relation between the mismatch index and the labor share of GDP and incumbent politicians' electoral fortunes is then estimated for the 1990-2014 period. The empirical results bring mixed support to the reasoning, as labor share is shown to be related to the mismatch indicator, while the influence of mismatch on the electoral fortunes of the incumbents is, at best, weak.

Keywords: currency crises, debt, trade, mismatch, elections.

JEL Codes: D72, F32, F34, F41

*LEM - CNRS (UMR 9221), Universités de Lille, Faculté des Sciences Economiques et Sociales, Bâtiment SH2, 59655 Villeneuve d'Ascq Cedex (France), and CIRANO (Montréal, Québec, Canada). Contact: etienne.farvaque@univ-lille1.fr

†School of Economics, Kwansei Gakuin University, 1-155 Uegahara Ichiban-cho, Nishinomiya, Hyogo 662-8501, Japan. Contact: efujii@kwansei.ac.jp

‡EDEHN - Université du Havre and LEM - CNRS - Universités de Lille, Faculté des Sciences Economiques et Sociales, Bâtiment SH2, 59655 Villeneuve d'Ascq Cedex, France. Contact: franck.malan@etu.univ-lehavre.fr

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1 Introduction

Nigeria is in a strange situation: its economy shrank by 1.5% in 2016, its first annual contraction in 25 years, but its president, Muhammadu Buhari has spent most of the year under medical treatment in London, creating obvious political uncertainty. Such uncertainty is also related to the presence of Boko Haram jihadists in the north-east and by unrelated militants' attacks on oil facilities in the Niger delta. Yet, the country was cajoled by investors, who invested in the euro-bonds emitted by Nigeria. What would investors do if the political uncertainty increases abruptly? One can guess that capital flows would run out of the country, drying up its credit, with dire consequences for the population.

Such a nasty event would not be something new, as many countries have already suffered from the consequences of abrupt capital outflows, created by political upheavals and the reactions they trigger from investors. In fact, if financial liberalization increases growth, it also leads to more crises and costly bailouts, as Rancière and Tornell (2017) show. And, as Bazillier and Najman (2017) show, banking and currency crises take their toll on households, with workers especially hit by currency crises, as the labor share of GDP declines by around 2% per year on average for the three years that follow a crisis.

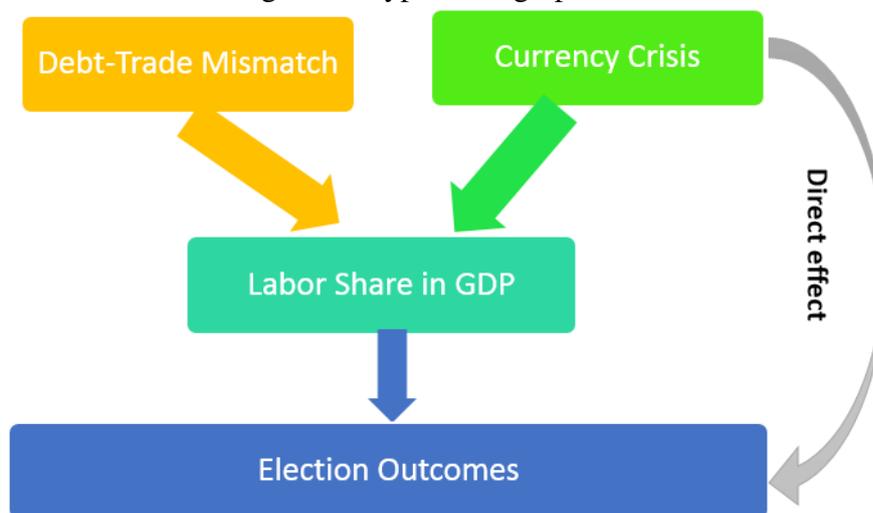
So far, the literature has mostly looked at the impact of international debt on the probability of exchange rate crises. And, it has also looked at the way politicians react to the financial constraints posed by international markets. In particular, Kaplan and Thomsson (2017) show, on a sample of Latin American countries, that politicians exhibit more fiscal discipline when they fund a greater share of their spending through decentralized (international) bond markets, and that this disciplining effect is particularly strong during election periods. This means that, would the result be a general one, democratic regimes should face fewer currency crises than other regimes, if only because they are more transparent and have a larger number of veto players, which should rein in any unsustainable course in international lending. However, elected politicians also have shorter horizons (see, e.g., Bonfiglioli and Gancia, 2013), and more pressure groups to satisfy, which may induce them to believe that the (international) budget constraint is softer than it really is. Steinberg et al. (2015) empirically examine these conflicting arguments, using a time-series cross-sectional dataset that covers 178 countries between 1973 and 2009. They find that the risk of currency crisis is substantially lower in monarchies than in democracies and other types of dictatorship, suggesting that political regimes strongly influence financial stability, and that perverse political incentives help explain why currency crises are so common, and why they affect democracies more than other types of political regimes.

In this paper, we go deeper into the mechanics of the relation between currency crises and elections, by considering that, if a currency crisis occurs, its impact on the labor share (and thus, on the incumbent's electoral perspective) will depend on the severity on the crisis. However, our specific assumption is that the latter will depend upon the degree of mismatch between the currencies in which it is indebted and the trade destinations a country covers. Should the mismatch be large, the consequences of the currency crisis will be larger, as exporters will be squeezed out of more markets (by lack

of supporting international credit) and importers will lack the currency needed by their foreign counterpart. Moreover, the mismatch makes it harder to reimburse maturing (international) credit. Hence, the larger the mismatch between the international indebtedness and a country's trade, the more severe the crisis will be. And the higher the expected cost on labor. The consequence of this should thus be a smaller probability of reelection for the incumbent politician, as it will lose support from a population more deeply and largely affected by the consequences of the crisis. In a related paper, Fujii (2017) shows that the extent of the debt-trade mismatch exerts a significant (negative) effect on a country's growth performance. Here, we focus on the shorter-run, electoral, consequences of the currency-compositional discrepancy between external debt and international trade.

What are the mechanisms linking one feature to another? First, the absence of matching between a country's external debt invoicing in different major currencies and its international trade invoicing in these currencies, and a currency crisis¹ have an impact on the level of inequality in the country, impacting the income of voters. Second, This creates resentment against the incumbent leader, in turn reducing her reelection prospects. Figure 1 summarizes these links. The focus of this paper is thus on the link between mismatch and electoral outcomes which has, to our knowledge, been overlooked in the literature.

Figure 1: Hypothesis graph



Certainly, one should not expect a linear relation between currency crises, the mismatch of debt and trade, and (re-)elections. As Figures 2 and 3 show, for example, the relation seem to vary country-by-country. Figure 2 shows that Brazilian incumbents have lost their position after a currency crisis in 1999, while they have won their position after a currency crisis occurred in 1995. Figure 3 reveals that the same pattern is observed for Mexico, but with different crisis years and election date. And it does not seem obvious to guess which circumstances or institutions, or other determinants may have influenced the relation in each case. Hence, our analysis aims at bringing some light into the relation, by introducing a new element in the analysis, namely the mismatch between debt and trade.

¹Technically, we build on the now-referential Frankel and Rose's (1996) definition of currency / exchange crises.

Figure 2: The Brazilian case

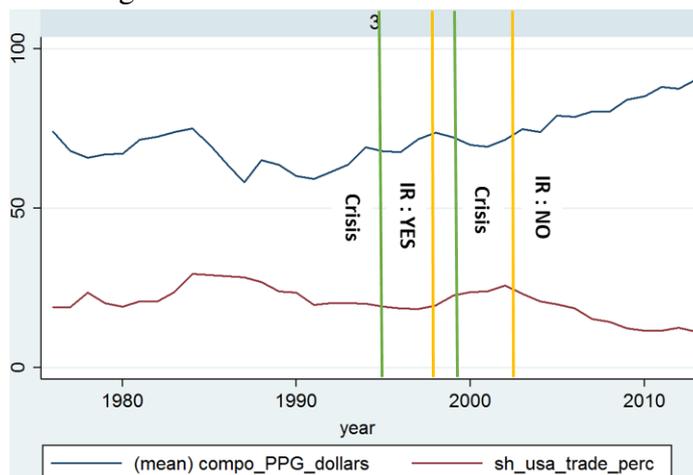
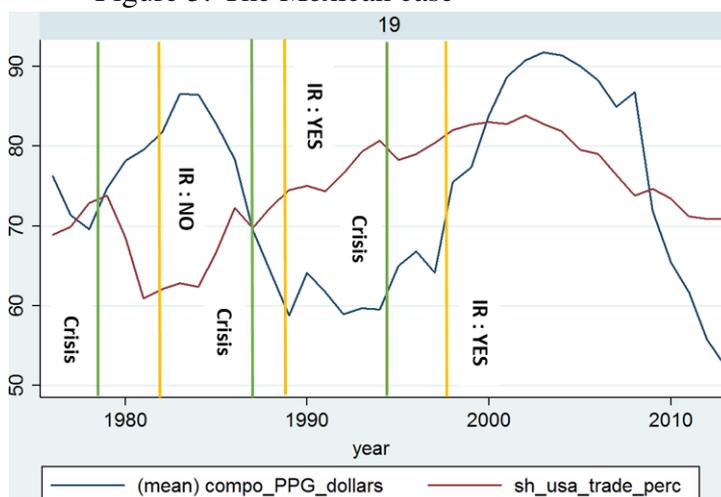


Figure 3: The Mexican case



We build our analysis on mismatch for the period 1976-2014. For this period, we are able to track the evolution of debt and trade mismatch for 48 Middle and Low Income Countries, using data from the World Bank’s International Development Statistics (IDS) for debt and Fouquin and Hugot (2016) for trade flows. However, measuring the share of labor compensation in GDP is notoriously fraught with complexities (as exposed by Diwan, 2001) and the UN methodology to gather relevant data has changed since 2002 (Bazillier and Najman, 2017). In parallel, as our focus is on electoral consequences, we are also constrained by electoral data. All in all, using data on labor share for the Penn World Tables (Feenstra et al., 2015) and electoral data from the World Bank’s Database on Political Institutions (Beck et al., 2001, updated up to 2015), we then carry our empirical analysis on the 1990-2014 period.

The paper is structured as follows. First, we present the data used for the empirical analysis, and the way we compute the debt-trade mismatch indicators, and analyze its evolution over time, globally and for some specific countries. Then, we expose the empirical strategy, before turning to the discussion of the results. The final section concludes.

2 The Mismatch Indicators (1976-2014)

In order to measure the extent to which a currency crisis or an increased mismatch between debt and trade can impact elections through the channel of the subsequent decrease in agents level of income, we build a panel structured database that includes 48 Middle and Low Income Countries (MICs and LICs) considered over the period 1970-2014. To build the main interest variable of this section, namely the ratio between international external debt and trade, we proceed in several steps.

First, we collect data on the currency denomination of external debts, from the World Bank's International Development Statistics (IDS). In the IDS database, the currency composition of the external debt is available only for the public and publicly guaranteed (PPG) debt, although the database covers a long period (from 1970 on). Even if this may at first sight appear as a constraint, as it could limit the scope of our study, this is not as problematic as one could worry about. This is because the PPG debt stock represents an important part (in fact, around 75%) of the total debt stock for the countries of the database. Therefore, we can consider that the external PPG debt stock is a reasonable proxy to measure the total external debt of these countries.

The data covers the percentage of the external long-term public and publicly-guaranteed debt contracted in the major currencies for 48 Low and Middle Income Countries.² Among these major currencies, the IDS database also provides composition categories labeled "All other currencies" and "Multiple currency" without delivering a lot more detailed information on these two categories of variables.

To build a complete matching indicator between the external debt denominated in Euro and international trade with the European countries on the entire period 1970-2014, we generate a synthetic external PPG debt in Euro, which includes the sum of the external PPG debt denominated in French Franc and the Deutsche Mark over the period 1970-2000. This is then added to the external PPG debt in Euro over the period 2001-2014 to form complete series.

Second, we also collect bilateral trade flows, from Fouquin and Hugot (2016) database.³ From this database, we generate the trade flows share of countries with other countries held in the major currencies. Although we would have preferred to have data on the trade share of the countries for each major currency, to our knowledge, this data cannot be found. The only available data appears to be the bilateral trade between countries. To build the trade share in major currencies, we thus have to formulate the hypothesis that trade between a major country and another given (low and middle income) country is made in the currency of the major country. Thus, for example, if a country trades with the United States, we consider that this trade is made in US dollars and, similarly, if a country trades with Euro area countries, this trade is made in Euro. This hypothesis can appear very drastic but it seems to

²The major currencies that have been considered are the following: the US dollar, the Euro, the United Kingdom sterling pound, the Japanese yen, the Swiss franc. The percentages of the French francs and of the Deutsche marks in the external PPG debt are also provided over the period 1980-2000 while, for the Euro, the percentage is available over the period 2000-2014.

³In this database, trade data is bilateral data between origin and destination countries by year. Ideally, one would have used export data between countries, but this sort of data is aggregated by country and year.

be the best we can formulate considering the configuration of the available data. Moreover, it tends to fit the reality quite well, as the available evidence supports the view that major currency issuers tend to invoice their trade in their own currencies (see, e.g., Lai and Yu, 2015, or Ito and Kawai, 2016).

Descriptive statistics of the PPG debt's share in each major currency and the trade share's with the major countries are summarized in table 1.

Table 1: Descriptive statistics of PPG debt and trade

Variables	Obs	Mean	Std. Dev.	Min	Max
Currency compo. of PPG debt, U.S. dollars (%)	1081	48.149	21.602	0	97.472
Currency compo. of PPG debt, Euro (%)	399	18.609	21.191	0	91.243
Currency compo. of PPG debt, Pound sterling (%)	1081	2.27	4.519	0	39.549
Currency compo. of PPG debt, Japanese yen (%)	1081	7.143	9.114	0	51.341
Currency compo. of PPG debt, Swiss franc (%)	1081	1.025	2.187	0	19.331
Currency compo. of PPG debt, all other currencies (%)	399	11.01	13.777	0	69.869
Currency compo. of PPG debt, Multiple currencies (%)	1081	12.042	12.561	0	87.66
Currency compo. of PPG debt, Deutsche mark (%)	682	5.502	5.568	0	72.111
Currency compo. of PPG debt, French franc (%)	682	8.832	12.49	0	62.36
Trade share with the United States (%)	1081	19.712	20.681	0	89.555
Trade share with the Euro countries (%)	1081	28.385	21.211	.212	89.796
Trade share with the Great Britain (%)	1081	4.846	7.164	.006	51.031
Trade share with Japan (%)	1081	5.814	7.223	0	40.232
Trade share with Swiss (%)	1081	.81	1.776	0	17.924
Trade share with France (%)	1081	7.117	8.893	0	47.223
Trade share with Deutsche (%)	1081	3.176	4.161	0	34.228
Trade share with all other countries (%)	1081	40.432	19.194	3.611	94.114

From external PPG debt and trade invoicing in major currencies data, we thus build our *matching indicator* through the following formula:

$$Matching = \log \left[\frac{(Debt_{i/\$} * depr_{i/\$}) + (Debt_{i/£} * depr_{i/£}) + (Debt_{i/Euro} * depr_{i/Euro}) + \dots}{(trade_{i/\$} * depr_{i/\$}) + (trade_{i/£} * depr_{i/£}) + (trade_{i/Euro} * depr_{i/Euro}) + \dots} \right],$$

As can be seen from the formula, the two components of the formula are weighted by the depreciation of the corresponding currency-denomination variation of the exchange rate. Hence, this aims at reflecting how a currency depreciation, say, increases the real value of indebtedness, while potentially relieving it, by the possibility for an economy to ease the burden by exporting more to the country with regard to whom it is indebted (as well as the others), thanks to the currency depreciation. However, it has to be acknowledged that the impact of the depreciation on the debt burden will be almost immediate, while the correction from trade corerctions will arrive later (and only if the traditional conditions on the - positive - impact of a depreciation on trade flows are verified). Expressed differently, we have: $\frac{\partial Matching_t}{\partial Debt_t} > 0$, $\frac{\partial Matching_t}{\partial depr_{i/j,t}} > 0$, while $\frac{\partial Matching_{t+n}}{\partial depr_{i/j,t} \partial trade_{i/j,t}} > 0$ is conditionnaly verified and, if verified, has its effects operating only after several verified ($t + n$). Hence, the higher the value

of the mismatch indicator, the worse the situation is, as it means that the deterioration in the real value of debt is larger than the opportunities that (potential) trade readjustments (i.e., increases in exports or reductions in imports) involve.

The descriptive statistics of the matching indicators are summarized in table 2. Note that we make use of debt stock data, while we use trade flows. This could raise an issue, as one would, intuitively, prefer to have a measure based on flows-to-flows, instead of one based on stocks-to-flows. However, one should not forget the goal of the analysis, which is to examine the interplay of the two effects of domestic depreciation. Hence, the question boils down to know if one should consider flow measures for external debt such as new issues or debt service, instead of stock. The debt revaluation effect refers to the changes in value of the existing liabilities, rather than new liabilities (i.e., newly issued debt). Indebted countries are vulnerable for exchange rate fluctuations because they can significantly increase the domestic currency value of their total liabilities including both existing and new issues. Debt service, another flow measure, is also problematic in that the actual service is determined by willingness rather than the obligation to pay back. The relevancy of the stock measure is supported also by the literature on debt crises and debt overhang that commonly considers the debt stock (relative to GDP) as a vital indicator. It's true that the currency compositions of debt stock and trade flows may differ in the extents of their stickiness. However, the currency compositions can shift not only for new issues, but also for the existing debt (via currency conversion options in rescheduling negotiations, for example). Moreover, trade flows, although exhibiting short-term variations, are also significantly determined by long-term factors such as comparative advantage, geographical proximity, and transport technologies (see, e.g., Anderson and van Wincoop E., 2004). These facts are likely to make the stock-flow differences in stickiness less substantial than they may generally seem. In sum, the fact that our numerator is based on stocks and the other on flows by itself does not discredit the validity of the analysis (see also Fujii, 2017, on this point). We nevertheless provide the comparable table, based on flows-flows measures, in the Appendix. An inspection of the two tables reveals their comparability and allows us to proceed with our favorite indicators, based on debt stocks.

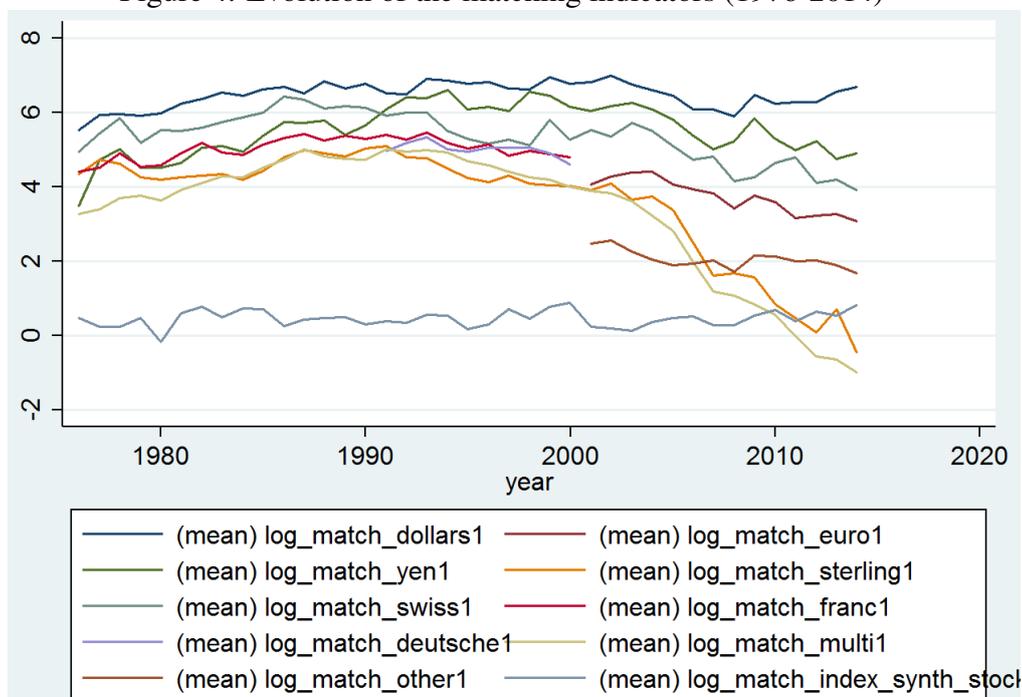
A first inspection of the table reveals relatively large discrepancies of the mismatch indicator among denomination currencies, especially if one looks at the minimum and maximum values for the indicator (the maximum being equal to 16.265 for the American dollar, against 7.249 for the euro, for example). However, the standard deviations across currencies are relatively comparable. Moreover, the matching index synthetic reveals the importance of looking at the whole set of currencies, as it appears that the relative evolution of currencies tend to average out. In other words, it seems that, when a country faces a currency depreciation, say with regard to the American dollar, this depreciation is not affecting the country's prospects with regard to the other currencies at the same time, either because the other currencies have divergent evolution with regard to the dollar, or because the depreciation induces a positive impact on trade, allowing to compensate the country from the first "increase of debt burden" effect. Even though our indicator does not allow separating out the two potential interpretations, the first one lies in conformity with recent evidence about the behavior of

Table 2: Descriptive statistics of matching index with debt stocks and Elections data

Variables	Obs	Mean	Std. Dev.	Min	Max
Log matching debt stock/trade flow with the United States	1071	6.49	1.911	-.079	16.265
Log matching debt stock/trade flow with the Euro countries	399	3.77	1.624	-6.947	7.249
Log matching debt stock/trade flow with Japan	911	5.648	2.171	-1.215	13.036
Log matching debt stock/trade flow with the Great Britain	846	3.983	2.24	-6.29	10.703
Log matching debt stock/trade flow with Swiss	737	5.493	2.459	-2.872	13.579
Log matching debt stock/trade flow with France	643	5.044	1.348	-.494	9.381
Log matching debt stock/trade flow with Germany	278	5.012	1.701	.26	8.759
Log matching multi currencies stock and trade flow with the other countries	1003	3.512	2.118	-6.823	7.715
Log matching debt stock/trade flow with the other countries	399	2.067	2.594	-9.233	6.693
Log of matching index synthetic with debt stocks 1976-2014	964	.46	.971	-5.618	3.528
President Percentage of Votes, first round reelection of the incumbent	544	63.991	23.763	19.5	100
	1030	.069	.253	0	1

main large currencies (see Habib and Stracca, 2012, or Kunkler and MacDonald, 2016).

Figure 4: Evolution of the matching indicators (1976-2014)



Now, looking at the variations of the index over time is also interesting. First, as Figure 4 shows, except for the American dollar (the top line) and for the (synthetic - i.e., aggregated - index, whose the evolution can be observed by looking at the bottom line), whose the evolution seem to be relatively

smooth (compared to the others), the matching indicators tend to reveal a downward sloping pattern. This is particularly true of the Swiss franc and the Sterling pound, as can be seen in Figure 5 and 6. This uncovers interesting trends and reveals a better matching over time between debt and trade for the selected countries. Inversely, the situation with regard to the American dollar reflects the (still) dominating position of this currency, both as an invoicing currency, but also as an easy path for developing countries acceding to international debt (see, e.g., Bernanke, 2017). Finally, it is interesting to see the evolution of the indicator for the French Franc (see Figure 7), which certainly reveals the anticipation of the emergence of the euro, inducing a dramatic drop in the numerator of the mismatch indicator (the debt stock), as can be seen from the evolution of debt stocks denominated in French Francs (see Figure 8).

Figure 5: Evolution of the matching indicator for the Swiss Franc (1976-2014)



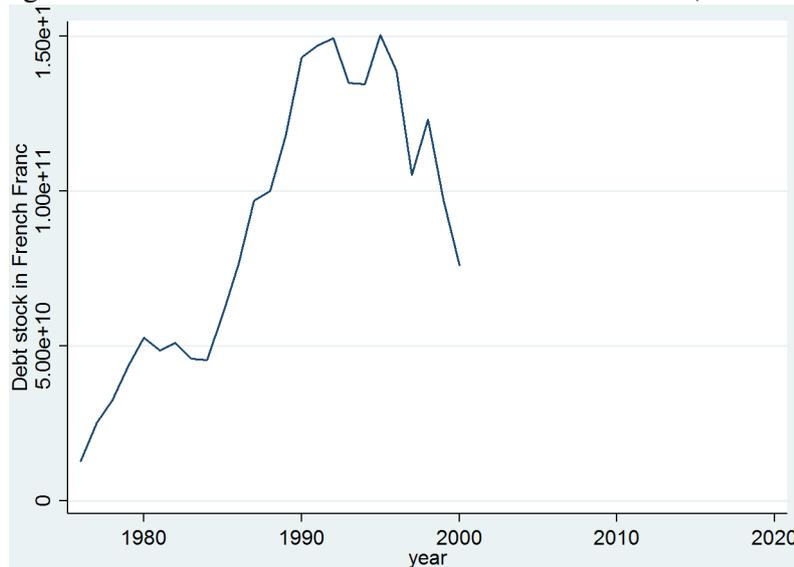
Figure 6: Evolution of the matching indicator for the Sterling Pound (1976-2014)



Figure 7: Evolution of the matching indicator for the French Franc (1976 -1999)



Figure 8: Evolution of the debt stock in French Franc (1976 -1999)



Of course, and interestingly too, the evolution of the mismatch indicator can be considered on a country-by country base. In Figures 9, 10 and 11, we display the evolution of the sub-index, first computed for the Sterling Pound component of the matching indicator (Figure 9), for its American counterpart (Figure 10), and then for the whole index (all currencies, Figure 11). For obvious expositional reasons, we show the evolution only for the 5 following countries: Bulgaria, Fiji, Iran, Togo and Zimbabwe⁴.

Data for Bulgaria only begins at the beginning of its transition to a market economy, and looking at its evolution reveals that, if the mismatch component in Sterling Pound and American dollars are decreasing over the period, it is not the case when we look at the aggregated data over all currencies. This

⁴pair_n=1 is Bulgaria, pair_n=12 is Fiji, pair_n=15 is Iran, pair_n=27 is Togo, pair_n=31 is Zimbabwe

thus reveals that, for Bulgaria, sources of the mismatch lie in other currencies, and that a reorientation of its debt and / or trade relations are to be considered in order to reduce the mismatch.

Concerning Fiji, the mismatch indicator reveals a brutal stop for the Sterling component, the evolution with regard to the American dollar shows a relatively constant degree of (weak) mismatch, with a period (the 1990s) during which the situation improved. The evolution of the aggregate indicator is not similar to the one with regard to the dollar, as the 1990s period contains a spike in the degree of mismatch, while the period after 2000 displays an enduring trade of increase in mismatch, probably reflecting the dire economic situation of this country over the period.

The situation for Iran shows an overall degradation of the aggregate mismatch indicator in the 1980s, followed by an improvement during the 1990s, except (see Figure 10) with regard to the American dollar. Since 2000, globally, the situation for Iran show a regular degradation of its mismatch indicator, both with regard to the dollar and to the aggregate of currencies. In this case, then, the country is not able to offset a mismatch in one currency by an improvement in others, revealing in the case of Iran too a deterioration and, in the end, a worrying trend.

Togo has a smoother pattern over the period (except for the bad starting point at the end of the 1970s, in all the currencies), although its situation is not of constant degrees of mismatch, but of rapidly evolving succession of ups and downs of the indicator.

The Zimbabwean case is of course interesting, given the long pattern of degradation of the economic situation of this country, and its even faster deterioration since the hyperinflation at the end of the 2000s. As can be seen graphically, if the country has strongly improved its situation with regard to the Sterling Pound in the last years of the period under review, the trend with regard to the dollar and the other currencies is increasing regularly over time, revealing the relentless degradation of the country's situation, with nothing apparently done to correct it over time.

Figure 9: Matching indicator - Selected countries - Sterling Pound (1976 - 2014)

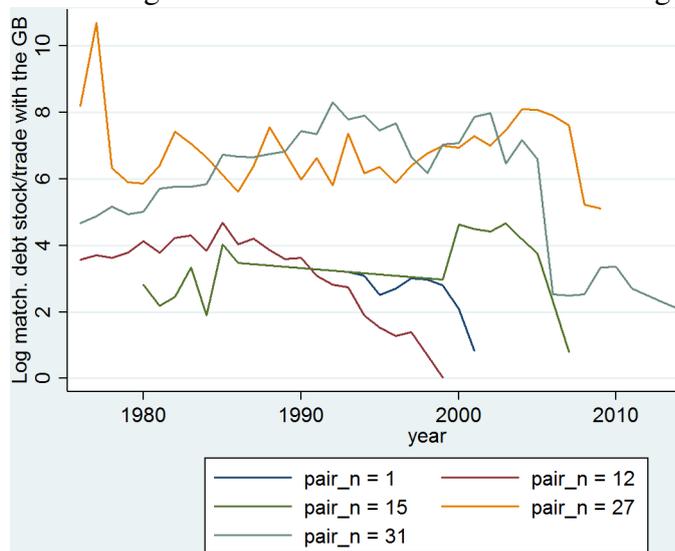


Figure 10: Matching indicator - Selected countries - American dollar (1976 - 2014)

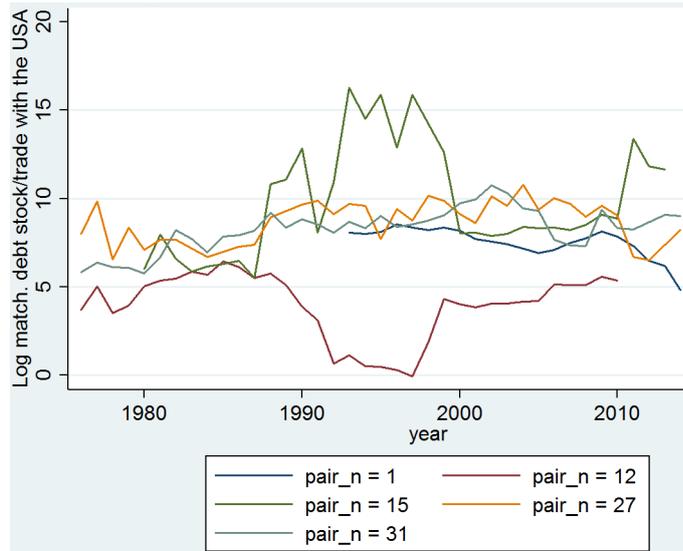
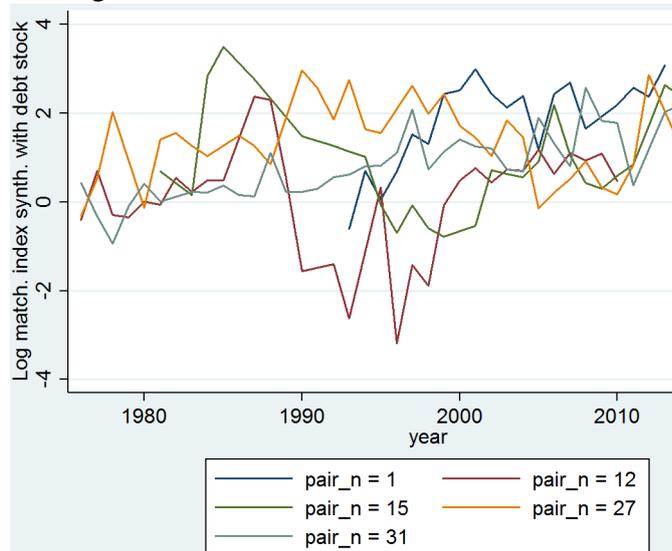


Figure 11: Matching indicator - Selected countries - All currencies aggregate (1976 - 2014)



3 Mismatch and Incumbent (Mis-)Fortunes: Empirical analysis (1990-2014)

3.1 Methodology

According to what has been described, and in particular due to the data limitations we discussed above, the equations have to be estimated on a shortened period, 1990-2014. The equations we consider are the following:

$$\begin{aligned} laborshare_{i,t} = & a_1 + a_2 * Matching_{i/j,t-1} + a_3 * Crisis_{i,t-1} + X'_{i,t-1} * a_4 \\ & + a_5 * (Matching_{i/j,t-1} * Crisis_{i,t-1}) + \alpha_i + \beta_t + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} electoral\ fortune_{i,t} = & a'_1 + a'_2 * Matching_{i/j,t} + a'_3 * Crisis_{i,t} + a'_4 * labor\ share_{i,t} + \\ & a'_5 * (Matching_{i/j,t} * Crisis_{i,t})_{i,t} + a'_6 * Pol_{i,t-1} + Y'_{i,t-1} * a'_7 + \rho_i + \gamma_t + \eta_{i,t} \end{aligned} \quad (2)$$

where $labor\ share_{i,t}$ is the change in growth rate of the country's labor share (i.e., labor compensation expressed as a share of GDP), $Matching_{i/j,t-1}$: the matching index in each major currency for a country i in a year $t-1$, $Crisis_{i,t-1}$ indicates if a country i has known a currency crisis in year $t-1$. $Pol_{i,t-1}$ concerns the political variables likely to influence the *electoral fortune*. $X'_{i,t-1}$ and $Y'_{i,t-1}$ are the vectors of control variables for a country i in year $t-1$ for each equation, respectively. α_i and ρ_i are the country fixed effects, β_t and γ_t are the year fixed effects, ε_{it} and $\eta_{i,t}$ are the error terms, distributed according to a normal distribution $(0, \delta^2)$. In the second equation, *electoral fortune* _{i,t} denotes the reelection prospects of the incumbent politician (assessed either by her probability of success, i.e., of reelection, or the percentage of votes obtained at the first round of election).

These two equations do not define a system, they are thus estimated separately. The first equation aims at assessing how the degree of mismatch between trade and debt can affect the distribution of income in a society, in particular after the country has been confronted with a currency crisis. We estimate it as a panel-data equation, including country and year fixed effects. The second equation is estimated through a Probit estimation of the probability of re-election, and a panel-data equation of the percentage of votes obtained at the first round of election. The goal of these estimates is to verify how the mismatch between debt and trade influences reelection prospects of an incumbent politician or the percentage of votes.

Concerning the independent variables, the crisis currency variable was built using Frankel and Rose's (1996) definition, using nominal exchange rate data from the International Monetary Fund's International Financial Statistics (IFS). According to the definition by Frankel and Rose (1996), the currency crisis is a dummy variable which has the value of "1" if a country had a nominal depreciation of her domestic currency by at least 25% which accounts for at least a 10% increase in the depreciation rate. To confirm the validity of our hypothesis through a robustness check, we also considered the Laeven and Valencia's (2013) currency crisis definition. According to Laeven and Valencia (2013), a currency crisis is a nominal depreciation of a country's local currency by at least 30% which accounts for at least a 10% increase in the depreciation rate. Descriptive statistics of our sample reveal a proportion of 6.84% of currency crisis according to the definition of Frankel and Rose (1996), and 5.80% according to the definition of Laeven and Valencia (2013).

Finally, concerning X'_{it-1} , the control variables are the following: the annual GDP growth rate, the globalization index and the growth rate of the share of the capital in the GDP. The vector Y'_{it-1} contains the annual GDP growth rate, the growth rate of the share of the capital in the GDP, and the $Pol_{i,t-1}$ regroups the difference between an election and the last crisis before the election, the government fractionalization, the number of veto player and the political system of the country⁵.

3.2 Preliminary Results

Table 3 presents preliminary results for the first equation. The first 8 models add successively in modelings the interest and independent variables.

As can be seen, the crisis dummy negatively impacts the labor share. Its coefficient is significant and its negative sign is the expected one. The result is in line with the ones provided by, for instance, Diwan (2001) or Bazillier and Najman (2017). More to our point, our indicator for mismatch is also highly significant, and also negatively signed. This result means that a higher level of the matching between the debt and the trade tends to decrease the labor share in the GDP. Hence, it appears that the mechanism we pointed out can be considered as relevant in the analyses of the economic consequences of currency crises.

Table 4 delivers other preliminary results for the second equation, based on the probability of reelection, while Table 5 displays equivalent results based on the percentage of votes obtained at the first round of election. Whether in the case of the probability of reelection of the incumbents or in the case of the votes obtained at the first round of election, none of interest and independent variables considered have a significant influence on election outcome variables. Hence, in these first regressions, our hypothesis concerning the combined influence of a crisis and of the matching index on the election outcomes is not supported by the data.

Further explorations are, however, to be considered before the hypothesis can be rejected. One path to be followed is to better check the timing effects, i.e., the distance between the crisis, the variation in the labor share, and the electoral process. These are only loosely dealt with in the preliminary estimates shown in this version of the paper, but subsequent analyses are to be implemented to refine the analysis.

⁵The political system concerns the modalities (2) for the parliamentary system, (1) for the assembly-elected president system and (0) for the the presidential system.

Table 3: labor share estimates

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crisis dummy (t-1)	-0.022*** (0.006)		-0.020*** (0.006)	-0.013* (0.008)	-0.013* (0.008)	-0.013* (0.008)	-0.014* (0.008)	-0.014* (0.008)
Log of match. index synth (t-1)		-0.006*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)
Interaction match. and crisis (t-1)				-0.008 (0.005)	-0.008 (0.005)	-0.009* (0.005)	-0.008 (0.005)	-0.008 (0.005)
GDP growth (t-1)					0.000 (0.000)		0.000 (0.000)	0.000 (0.000)
Recession (t-1)						-0.008* (0.004)		
Globalization index (t-1)							0.000 (0.000)	0.000 (0.000)
Growth rate of the capital stock (t-1)								-0.004 (0.012)
Constant	0.481*** (0.008)	0.477*** (0.008)	0.479*** (0.008)	0.478*** (0.008)	0.478*** (0.008)	0.479*** (0.008)	0.453*** (0.028)	0.454*** (0.028)
Observations	483	483	483	483	483	483	483	483
R ²	0.213	0.230	0.248	0.253	0.254	0.259	0.256	0.256
Country and year fixed effects	YES							

4 Conclusion

[To be completed.]

Table 4: Reelection of the incumbent estimates

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labor share in GDP (t-1)	5.634 (6.118)	4.986 (6.140)	5.464 (6.371)	5.385 (6.385)	5.075 (6.469)	4.942 (6.452)	5.240 (6.506)
Crisis dummy (t-1)		-1.012 (1.133)	-0.995 (1.135)	-0.559 (1.435)	-0.672 (1.446)	5.287 (4.784)	6.220 (5.001)
Log of match. index synth (t-1)			0.065 (0.221)	0.065 (0.221)	0.037 (0.230)	0.095 (0.233)	0.139 (0.242)
Interaction match. and crisis (t-1)				-0.437 (1.029)	-0.501 (1.069)	-2.568 (2.853)	-3.117 (2.919)
GDP growth (t-1)					-0.078 (0.062)	-0.066 (0.063)	-0.071 (0.065)
Growth rate of the capital stock (t-1)					0.011 (2.040)	-0.109 (2.055)	-0.183 (2.117)
Diff. crisis and election (t-1)						-0.206 (0.172)	-0.233 (0.179)
Government fractionalization (t-1)							-0.808 (1.660)
Number of veto player (t-1)							0.059 (0.218)
Political system (t-1)							-0.620 (1.577)
Observations	271	271	271	271	271	271	271
Country and year fixed effects	YES	YES	YES	YES	YES	YES	YES

Table 5: Votes obtained at the first round votes estimates

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labor share in GDP (t-1)	22.226 (28.674)	25.131 (28.878)	23.185 (28.959)	23.418 (28.901)	29.129 (28.095)	30.322 (28.110)	22.378 (25.793)
Crisis dummy (t-1)		3.442 (3.903)	3.420 (3.904)	-1.749 (5.441)	0.472 (5.309)	-6.308 (8.321)	-0.920 (7.690)
Log of match. index synth (t-1)			-0.825 (0.873)	-0.947 (0.876)	-0.813 (0.863)	-0.939 (0.871)	0.129 (0.822)
Interaction match. and crisis (t-1)				5.485 (4.030)	5.849 (3.921)	6.036 (3.924)	6.113* (3.596)
GDP growth (t-1)					0.608** (0.247)	0.591** (0.247)	0.480** (0.227)
Growth rate of the capital stock (t-1)					-20.139** (8.279)	-19.752** (8.285)	-20.924*** (7.665)
Diff. crisis and election (t-1)						0.175 (0.166)	0.086 (0.153)
Government fractionalization (t-1)							-23.053*** (5.580)
Number of veto player (t-1)							-2.766*** (0.995)
Political system (t-1)							-26.327*** (9.957)
Constant	41.532*** (14.563)	40.077*** (14.663)	41.316*** (14.726)	41.206*** (14.696)	37.262*** (14.300)	36.799** (14.302)	52.252*** (14.974)
Observations	252	252	252	252	252	252	252
R ²	0.183	0.186	0.190	0.197	0.251	0.255	0.395
Country and year fixed effects	YES	YES	YES	YES	YES	YES	YES

References

- [1] Anderson, J. E., van Wincoop E., 2004, “Trade Costs”, *Journal of Economic Literature*, 42(3), 691-751.
- [2] Beck, T., Clarke, G., Groff A., Keefer, P., and Walsh, P., 2001, “New tools in comparative political economy: The Database of Political Institutions”, *World Bank Economic Review*, 15:1, 165-176.
- [3] Bernanke, B. 2017, “Federal Reserve Policy in an International Context”, *IMF Economic Review*, 65: 5-36.
- [4] Bonfiglioli, A. and Gancia, G., 2013, “Uncertainty, electoral incentives and political myopia”, *Economic Journal*, 123(568):373–400.
- [5] Feenstra, R. C., Inklaar R., and Timmer M. P., 2015, “The Next Generation of the Penn World Table”, *American Economic Review*, 105(10), 3150-3182, available for download at www.ggdcc.net/pwt.
- [6] Fouquin M., Hugot J., 2016, “Two Centuries of Bilateral Trade and Gravity Data: 1827-2014”, CEPII Working Paper 2016-14.
- [7] Frankel, A. J. and Rose, K. A., 1996, “Currency crashes in emerging markets: an empirical treatment”, *Journal of International Economics*, 1996, 41, 351-366.
- [8] Fujii, E., 2017, “External Debt and International Trade: Another Mismatch” in Frank Westermann and Yin-Wong Cheung (eds.), *International Currency Exposure*, MIT Press, forthcoming.
- [9] Habib M. M., Stracca L., 2012, “Getting beyond carry trade: What makes a safe haven currency?”, *Journal of International Economics*, 87(1), 50-64.
- [10] Ito, Hiro and Kawai, Masahiro, 2016, “Trade invoicing in major currencies in the 1970s–1990s: Lessons for renminbi internationalization”, *Journal of the Japanese and International Economies*, 42(C),123-145.
- [11] Kaplan, S. B., Thomsson K., 2017, “The Political Economy of Sovereign Debt: Global Finance and Electoral Cycles”, *Journal of Politics* 79(2), 605-623.
- [12] Kunkler M., MacDonald R., 2016, “Idiosyncratic variation of the US Dollar”, *Economics Letters*, 144, 7-9.
- [13] Laeven, L., and Valencia, F., 2013, “Systemic Banking Crises Database”, *IMF Economic Review*, 61, 225-270.
- [14] Lai, E. L.-C. and Yu, X., 2015, “Invoicing Currency in International Trade: An Empirical Investigation and Some Implications for the Renminbi”, *World Economy*, 38: 193–229.

- [15] Rancière, R., Tornell, A., 2016, “Financial Liberalization, Debt Mismatch, Allocative Efficiency, and Growth”, *American Economic Journal: Macroeconomics*, 8(2): 1-44.
- [16] Steinberg, D. A., Koesel, K. J., Thompson, N. W, 2015, “Political Regimes and Currency Crises”, *Economics and Politics*, 27: 337–361.