Capital Flight and its Determinants in the Franc Zone

By

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AERC Research Paper 215
African Economic Research Consortium, Nairobi
January 2011

THIS RESEARCH STUDY was supported by a grant from the African Economic Research Consortium. The findings, opinions and recommendations are those of the author, however, and do not necessarily reflect the views of the Consortium, its individual members or the AERC Secretariat.

Published by: The African Economic Research Consortium
P.O. Box 62882 - City Square
Nairobi 00200, Kenya

Printed by: Regal Press (K) Ltd
P.O. Box 46166 - GPO
Nairobi 00100, Kenya

ISBN 9966-778-85-3

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Abstract

The phenomenon of capital flight appeared in the Franc Zone (FZ) before the debt crisis of the early 1980s, and is today of greater importance because of its increasing magnitude. This report examines the determinants of this phenomenon in the period 1970 to 2005. The econometric analysis indicated that in the context of poor governance and bad institutional quality, external debt, aid and natural resources, revenues are used in part to finance capital flight. The results also revealed that capital flight arises in the presence of macroeconomic instability that occurs in the forms of an increase in inflation, an exchange rate overvaluation, a decline in terms of trade, uncertainties in government consumption, real interest rates and budget deficits. Furthermore, capital flight episodes arise in the context of less developed financial systems, resulting in reduced deposits and in credit to the private sector. Exploring the effects of other factors, this study found that past capital flight, foreign direct investment and remittances are important in explaining current capital flight, while rate of return differentials and armed conflict have insignificant effects. The policy implications of these results are analysed to determine how to induce capital flight reversal.

JEL classification: F20; F34; F35; O17

Key words: Capital flight; capital inflows; macroeconomic instability; financial development; institutions; Franc Zone

Acknowledgements

This research paper benefited from technical and financial support from the African Economic Research Consortium (AERC). It was written in part while I was a visiting scholar at the International Monetary Fund (IMF) in Washington, D.C., from 11 August to 19 September 2008. My sincere appreciation to the IMF and AERC.

1. Introduction

The issue of investigating the determinants of capital flight is important. Indeed, if resources that leave a country in the form of capital flight could be attracted back, they would make a major contribution to economic development. It is thus necessary to identify and implement policies that may help to repatriate these resources. However, identifying which policies can be most effective in achieving the objective of capital flight repatriation depends crucially on what factors initiated these capital outflows in the first place (Rojas-Suàrez, 1990), justifying then the importance of examining the determinants of capital flight.

This report focuses on the Franc Zone (FZ) countries (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea-Bissau, Mali, Niger, Senegal and Togo) where, according to estimations available in the literature, the phenomenon of capital flight appeared before the debt crisis of the early 1980s (Boyce and Ndikumana, 2001; Ndikumana and Boyce, 2003, 2007). Indeed, those estimations revealed that, for some FZ countries, capital flight stood at a considerable amount in the 1970s. Since the 1980s, the debt crisis increased the magnitude of the phenomenon for some of these countries (Ajayi, 1997; Boyce and Ndikumana, 2001).

Capital flight from FZ countries deserves serious attention for several reasons. First, those countries benefit from few capital controls because of the principle of the free circulation of capital in the zone. This principle facilitates capital flight which is reaching an increasing magnitude. Recent estimates indicate that, over the period 1970 to 2004, 13 FZ countries experienced a massive capital flight that amounts to nearly $50 billion (Ndikumana and Boyce, 2007). Their paper reveals that the FZ countries are among the sub-Saharan African countries where, for every dollar of external borrowing in this period, roughly 60 cents left these countries as capital flight.

Second, as indicated in Table A1, macroeconomic performances are better in the FZ than in the rest of sub-Saharan Africa. Indeed, compared with non-FZ countries, the FZ experienced lower inflation rate (8.06% versus 76.02% with the deflator of gross domestic product (GDP); 2.77% versus 3.68% with the consumer price index) and lower inflation rate variability (12.03% versus 230.44%) in the period 1960 to 2004, less severe fiscal deficit (-3.89% versus -4.70%) over the period 1965 to 2004, and higher economic growth (3.09% versus 2.85%) from 1970 to 2003 (Table A1). This macroeconomic environment, more stable in the FZ than in the rest of sub-Saharan Africa, should stimulate domestic investment and lead to a decline in capital flight in the FZ. However, that is not the case, since the FZ experiences massive capital flight (Boyce and Ndikumana, 2001; Ndikumana and Boyce, 2003, 2007). Therefore, despite the relative stability of the macroeconomic

environment in the FZ, it could be interesting to explore the factors that play an important role in explaining capital flight in the FZ.

In some past studies on the determinants of capital flight, panel data included not only the FZ countries but also other sub-Saharan African countries or a large sample of developing countries (Table A2). However, a meaningful analysis of the determinants of capital flight from the FZ requires having a sample that includes only the countries in this zone. Focusing on a sample including only these countries (all the 15 FZ countries are included[1]), this report provides a more adapted analysis model of the causes of capital flight in the FZ and thus contributes to a better understanding of the causes of this phenomenon in this zone. In that sense, this report contributes to highlight a set of economic and non-economic factors that explain capital flight in the FZ. The econometric estimates indicate that in a context of poor governance and bad institutional quality, external debt, aid and natural resources revenues are used in part to finance capital flight. The results reveal also that capital flight episodes arise in the presence of macroeconomic instability and in a less developed financial system.

The rest of this paper is organized as follows. Section 2 examines capital flight issues, regarding the definition of this phenomenon, the measurement of its magnitude and the identification of its determinants in the literature. Section 3 underlines the method used in measuring capital flight from the FZ countries and analyses the results of the estimations. Section 4 defines data used, with respect to the dependent variable and the explanatory variables. Section 5 highlights the econometric analysis results and examines the policy implications. Section 6 concludes the paper.

2. Capital flight issues

The issue of defining capital flight

The search for a method that would help to estimate the magnitude of capital flight has been a major preoccupation of economists since the debt crisis of the early 1980s in the Latin American countries. Their concerns centred on the definition of this concept. However, in the literature, there is no consensus on the definition of capital flight (Hermes et al., 2002a).

Several studies argue that normal capital outflows should not be considered as capital flight (Deppler and Williamson, 1987; Kindleberger, 1987; Walter, 1987). According to those studies, normal capital outflows are based on concerns of the residents to diversify their portfolio or on the activities of the domestic commercial banks aiming to hold or to extend their assets overseas. The phenomenon of capital flight is related to an extremely high uncertainty and risk with respect to returns on domestic assets of residents who take their money and run in order to avoid considerable losses in their domestic wealth.

Yet, it is extremely difficult to differentiate, on an empirical basis, normal capital outflows from those that are not normal (Gordon and Levine, 1989). Several authors therefore feel that capital flight should not be distinguished from normal capital outflows (Erbe, 1985; World Bank, 1985; Morgan Guaranty Trust Company, 1986, 1988). They claim that, for countries that are faced with large current account deficits and with payments of their external debt (and which are then in need of foreign capital), capital outflows increase their difficulties to finance their net imports and the payments of their debts (Hermes et al., 2002a).

Measuring capital flight is not simple because of the non-existence of consensus on the definition of this concept. Indeed, several methods of measuring capital flight exist in the literature. The following measures can be distinguished: The residual method, the Dooley method, the hot money method, and the asset method (Claessens and Naudé, 1993; Murinde et al., 1996; Hermes et al., 2002a; Ajayi, 2007).

The methods of measuring capital flight

The residual method

According to the residual method, capital flight during a year t and for a country i is calculated as follows:

$$FC_{rit}=(\Delta DET_{it} + INDE_{it}) - (CC_{it} + \Delta RES_{it}) \quad (1)$$

Where FC_r is capital flight according to the residual method; ΔDET is change in total external debt outstanding; INDE is net direct foreign investment; CC is current account balance; ΔRES is change in foreign reserves.

The residual method has been used by, among others, Erbe (1985) and the World Bank (1985). Morgan Guaranty (1986) refers to this method, but takes into account an additional item, i.e. the change in the short-term foreign assets of the domestic banking system (ΔABD). Thus, capital flight according to Morgan Guaranty (1986) variant of the residual method (FC_m) can be calculated as:

$$FC_{mit}=(\Delta DET_{it} + INDE_{it}) - (CC_{it} + \Delta RES_{it}) - \Delta ABD_{it} \quad (2)$$

Other authors have also used a modified version of the residual method by adjusting their measurement of capital flight simultaneously for exchange rate fluctuations, trade misinvoicing, inflation and interest earnings (Ajayi, 1997; Boyce and Ndikumana, 2001; Ndikumana and Boyce, 2003, 2007).

The Dooley method

The Dooley method computes capital flight as the difference between total capital outflows and the change in external assets stocks. According to this method, total capital outflows are calculated as follows:

$$FETC_{it}=EE_{it} + INDE_{it} - CC_{it} + \Delta RES_{it} - EON_{it} - BMFMI_{it} \quad (3)$$

Where FETC is total capital outflows; EE is foreign borrowing as reported in the balance of payments statistics; EON is net errors and omissions; and BMFMI is the difference between the change in the stock of external debt reported by the World Bank and foreign borrowing reported in the balance of payments statistics published by the International Monetary Fund (IMF). The stock of external assets corresponding to reported interest earnings is:

$$AE_{it} = \frac{GINT_i}{r_i} \quad (4)$$

Where AE is external assets; r is the US deposit rate (assumed to be a representative international market interest rate); and GINT is reported interest earnings. Capital flight according to the Dooley method (FC_d) is then measured as:

$$FC_{dit} = FETC_{it} - \Delta AE_{it} \quad (4)$$

The hot money method

The hot money method is the sum of short-term capital outflows and net errors and omissions. There are three variants of the hot money method which are indicated below (Cuddington, 1986; Ajayi, 1997):

$$FC_{1ait} = -(g_{it} + c_{1it}) \quad (6)$$

$$FC_{2ait} = -(g_{it} + c_{it}) \quad (7)$$

$$FC_{3ait} = -(g_{it} + c_{it} + e_{1it} + e_{2it}) \quad (8)$$

Where FC_{1a} is the first variant of the hot money method; FC_{2a} is the second variant of the hot money method; FC_{3a} is the third variant of the hot money method; g is the net errors and omissions; e refers to the portfolio investment: e_1 and e_2 are the other bills and shares respectively; c is the other short-term capital of the other sectors; and c_1 is the other assets.

The asset method

Papers by Bank of England (1989), Hermes and Lensink (1992), and Collier et al. (2001), consider the total stock of assets of non-bank residents held at foreign banks as a measure of capital flight. This is the so-called asset method.

The magnitude of capital flight from the FZ

Several authors have estimated the magnitude of capital flight from FZ countries in absolute terms and in relative terms. The Bank of France (1987) studied capital flight from 31 developing countries, including FZ countries. Making the difference between the need for financing (such as it appears in the balance of payments) and the variation in the external debt adjusted for exchange rate fluctuations, the Bank of France (1987) finds that, from 1973 to 1987, capital flight from the FZ was US$8.6 billion, equivalent to 28% of the external debt of the FZ.

Ojo (1992) estimated capital flight from three heavily indebted countries, including only one country in the FZ, Côte d'Ivoire. This author reveals that, from 1975 to 1991, cumulative capital flight from Côte d'Ivoire stood at US$10.9 billion.

Ajayi (1997) evaluated, from 1980 to 1991, the magnitude of capital flight from 18 severely indebted low-income countries in sub-Saharan Africa. The 18-country sample includes five FZ countries (Central African Republic, Côte d'Ivoire, Guinea-Bissau, Mali and Niger). The results of this study show that the ratio of capital flight to gross national product (GNP) stood at 9.5%, 39%, 115.4%, 39.7% and 14.3% respectively for Central African Republic, Côte d'Ivoire, Guinea-Bissau, Mali and Niger and that

the ratio of capital flight to external debt amounted to 14.6%, 18%, 41.5%, 36.2% and 20.3% respectively for the same countries.

Hermes et al. (2002a) estimated, by using the residual method, capital flight from four regions: East Asia, South Asia, Latin America and sub-Saharan Africa. Two FZ countries (Cameroon and Côte d'Ivoire) are included in the sample. The results indicate that capital flight from Cameroon stood at US$480 million from 1983 to 1989 and at US$460 million from 1990 to 1998, and capital flight from Côte d'Ivoire amounted to US$296 million over the first period and to US$346 million over the second period. For Cameroon this capital flight is equivalent to 4.6% of GDP from 1983 to 1989 and to 4.9% of GDP from 1990 to 1998; for Côte d'Ivoire, capital flight was equivalent to 3% of GDP over the first period and to -3.9% of GDP over the second period.

Ndikumana and Boyce (2007) estimated capital flight from sub-Saharan African countries, including 13 FZ countries. Their results indicate that capital flight from the 13 FZ countries amounted to roughly US$50 billion over the period 1970–2004, representing 95.5% of GDP and 100.7% of external debt of those countries. These authors found that net external assets, calculated as the difference between capital flight and external debt, was positive and stood at US$349.3 billion. These findings suggest that the FZ countries are net creditors vis-à-vis the rest of the world in the sense that they have outside the country more resources than liabilities.

The results of estimations of capital flight differ then in techniques of measure used, period considered and sample taken into account. Table A3 provides some estimations of capital flight from the FZ countries available in the literature, by indicating the techniques of measure used, the magnitude of capital flight in absolute terms, the time period and the FZ countries considered in the sample.

The determinants of capital flight in the literature

Several studies have examined the determinants of capital flight. Table A2 indicates past empirical evidence found in several analysis studies of the determinants of capital flight. This table shows that certain variables are regularly identified as important causes of capital flight. However, the results differ due to the capital flight measures and econometric estimation techniques used. In the literature, the main determinants of capital flight are: Past capital flight, capital inflows, macroeconomic instability, rate of return differentials, financial development, governance and institutional quality, political risks and war, and uncertainty of public policies (Hermes and Lensink, 2001; Hermes et al., 2002a, 2002b; Ndikumana and Boyce, 2003; Ajayi, 2007; Ndikumana and Boyce, 2007; Cerra et al., 2008).

Past capital flight

According to Collier et al. (2001), when residents hold large amounts of foreign assets, the tax base is reduced considerably, increasing the burden per unit of domestically held asset. Consequently, this will further stimulate residents to take their money and run. Thus, the larger the stocks of capital flight, the higher the incentives to flee (Collier et al., 2001). On the contrary, Vos (1992) argued that the stock of capital flight reflects

the desire of residents to hold foreign assets to satisfy their foreign consumption needs. Then, flows of capital flight may reflect residents' behaviour in targeting a certain stock of foreign asset holdings.

Empirical studies have found that past capital flight positively influences current capital flight (Cuddington, 1987; Mikkelsen, 1991; Vos, 1992; Ndikumana and Boyce, 2003, 2007; Cerra et al., 2008). Contrary to the findings of these authors, Nyoni (2000) found a negative coefficient of past capital flight, whereas results from Boyce (1992, 1993) revealed an insignificant impact.

Capital inflows

Capital inflows identified as determinants of capital flight are: External debt, foreign direct investment, external aid and bank lending. External debt can affect capital flight in several ways. First, external debt may provide corrupt leaders with resources they can channel overseas as capital flight (Cuddington, 1987; Duwendag, 1989; Henry, 1996). Second, Lessard and Williamson (1987) argued that the payment of debt leads to an increase in the likelihood of a fiscal crisis, inducing capital flight. Third, according to the model from Eaton (1987), current foreign borrowing increases future repayment obligations of the government when it actually nationalizes debt repayments. If residents perceive that the government will pass the costs of these repayments on them, for example by using the inflation tax, they may shift their portfolio in favour of foreign assets.

Most studies have found that external debt is one of the most important empirical causes of capital flight: For every dollar of external debt, roughly 75% to 90% (Hermes and Lensink, 1992) or 80% (Ndikumana and Boyce, 2003) or 60% (Ndikumana and Boyce, 2007) are re-exported overseas in the form of capital flight. Ljungwall and Wang (2008) find that changes in external debts spur changes in capital flight. However, Ajayi (1992) and Nyoni (2000) have found an insignificant effect of external debt flows on capital flight. Some authors have revealed the existence of a revolving door, i.e., a bi-directional causality between capital flight and external debt (Boyce, 1992; Chipalkatti and Rishi, 2001; Salisu, 2005; Beja, 2006; Cerra et al., 2008).

Papers by Cuddington (1987), Dooley (1988), Gibson and Tsakalotos (1993), and Kant (1996), show that an augmentation in foreign direct investment may finance capital flight due to foreign currencies inflows. Moreover, according to these authors, this augmentation may reflect the increase in foreign investors' confidence on the economic perspective of the country, reducing capital flight. Econometric results from some authors confirm that a decline in foreign direct investment may stimulate capital flight (Kant, 1996; Harrigan et al., 2002; Cerra et al., 2008). However, Lensink et al. (2000) found that foreign direct investment is not an important determinant of capital flight.

According to Collier et al. (2004b), aid may influence capital flight by affecting risks and returns on domestic private assets. Bauer (1981) argued that aid might be used to finance capital flight. The impact of external aid on capital flight has been found to be positive (Lensink et al., 2000; Hermes and Lensink, 2001; Quazi, 2004), negative (Collier et al., 2004b; Cerra et al., 2008) and insignificant (Hermes and Lensink, 1992; Murinde et al., 1996; Lensink et al., 1998; Hermes et al., 1999). Davies (2008) has found no consistent relationship between aid and capital flight, depending on the econometric estimation technique used.[2]

Bank lending is another capital inflow that significantly and positively affects capital flight (Lensink et al., 2000; Hermes and Lensink, 2001).

Macroeconomic instability

Macroeconomic instability may occur in several forms: Rise in inflation, decline in economic growth, deterioration in terms of trade, rise in budget deficits, increase in tax, augmentation in current account deficits, and exchange rate overvaluation. According to Hermes and Lensink (2001), macroeconomic instability leads to raising expectations of imposing higher taxes and tax-like distortions, such as exchange rate devaluation. This will lower returns and increase risk and uncertainty of domestically-held wealth (Hermes and Lensink, 1992; Collier et al., 2004b), increasing therefore incentives for capital flight. Le and Zak (2006) found economic risk to be an important cause of capital flight.

High inflation reduces the real value of domestic assets, inducing the residents to hold their wealth outside the country (Hermes et al., 2002b). Several empirical studies have confirmed the positive effect of inflation on capital flight (Cuddington, 1986, 1987; Dooley, 1988; Ketkar and Ketkar, 1989; Pastor, 1990; Rojas-Suàrez, 1990; Muscatelli and Hallett, 1992; Davies, 2008).

Low economic growth may cause capital flight (Morgan Guaranty, 1988). This may be because investors interpret high growth performance as an indicator of high overall returns to capital in the country, thus discouraging capital flight (Ndikumana and Boyce, 2007). Several empirical studies support this presumption. In his econometric analysis, Ajayi (1992) finds that capital flight from Nigeria is related to domestic economic growth. Harrigan et al. (2002) showed that the growth of real GDP plays an important role in explaining capital flight from Malaysia. Mikkelsen (1991) revealed that low economic growth negatively and significantly affects capital flight from 22 developing countries. An increase in capital flight from Latin American countries and the Philippines is related to a decline in the economic growth rate of these countries (Muscatelli and Hallet, 1992). Pastor (1990) found that the economic growth rate differential between the United States and Latin American countries is an important determinant of capital flight for this region. The estimated results from Alam and Quazi (2003) and Quazi (2004) suggest that lower real GDP growth significantly contributes to capital flight from Bangladesh. Results from the study by Ndikumana and Boyce (2007) indicate that the growth rate is negatively related to capital flight from sub-Saharan African countries. Real GDP growth is inversely related to capital flight from China (Ljungwall and Wang, 2008).

A decline in terms of trade is a major cause of capital flight (Gordon and Levine, 1989; Ajayi, 1992). Indeed, according to these authors, this reduction leads to a contraction of economic activity, inducing a macroeconomic imbalance which occurs in the form of balance of payments difficulties, budget deficit and decrease in investment, obliging the government to change its policy programmes. Since a reduction in terms of trade leads to a fall in government income, the government will increase tax in order to pay its obligations. As investors expect an increase in tax, they will hold their assets overseas.

Many authors have emphasized the impact of budget deficit on capital flight. Ajayi (1992) asserted that to finance a budget deficit, a government proceeds with money creation which is a source of inflation. If inflation persists, individuals may decide to transfer their assets outside the country in order to avoid inflation tax. According to

Ajayi (1992), if the budget deficit is financed through issue of bills, domestic residents may expect to be confronted with higher fiscal responsibility to pay for this public borrowing, encouraging domestic investors to transfer their assets overseas in order to avoid assuming this potential fiscal responsibility. Hermes et al. (2002b) also think that a budget deficit may stimulate capital flight since residents would expect an increase in tax to enable government reimburse its debt. As a result, the real value of domestic assets is reduced, inducing capital flight.

Other authors found the same empirical result: An increase in budget deficit leads to important capital flight (Pastor, 1990; Mikkelsen, 1991; Ajayi, 1992; Boyce, 1992, 1993; Muscatelli and Hallett, 1992; Ojo, 1992; Sheets, 1996; Schineller, 1997a, 1997b; Cerra et al., 2008). On the contrary, findings from Ndikumana and Boyce (2003) are ambiguous: Primary budget surplus has a negative and statistically significant impact on capital flight, whereas the overall deficit does not cause significant capital outflow. This insignificant link between budget deficit and capital flight is also found in other studies (Hermes and Lensink, 1992; Henry, 1996; Hermes et al., 1999).

Another macroeconomic instability indicator in explaining capital flight is tax. Cardoso and Dornbush (1989) considered that capital flight is related to the desire of residents to avoid the local imposition. According to Collier et al. (2001), a rise in tax leads to a fall in returns and a rise in risks and uncertainties in domestic wealth, thus increasing incentives to flee capital. Ndikumana and Boyce (2003) found that there are three main channels through which taxation is thought to affect capital flight. First, *ceteris paribus*, expected high tax rates imply lower expected net returns to domestic investment. Second, volatility of the tax rate results in higher investment risk and lower risk-adjusted returns to domestic investment. Third, discriminatory tax treatment in favour of foreign assets (often used to attract foreign capital) may also discourage domestic investment.

Empirical studies that have taken into account the ratio of tax to GDP have found no statistically significant link between capital flight and tax (Pastor, 1990; Hermes and Lensink, 1992; Vos, 1992; Henry, 1996; Ndikumana and Boyce, 2003). Schineller (1997a) found that low imposition contributes to make capital flight low for a sample of 18 developing countries over the period 1978 to 1988. Loungani and Mauro (2000) revealed also that high capital flight from Russia, Central Europe, the Baltic States and Latin America, is significantly associated with high imposition. Increases in corporate taxes have been found to be an important cause of capital flight from Bangladesh (Alam and Quazi, 2003; Quazi, 2004).

Exchange rate overvaluation is considered an important determinant of capital flight (Hermes et al., 2002b). These authors assert that an overvalued exchange rate leads to high expectations of a depreciation of domestic currency, leading to an increase in the prices of foreign goods compared with prices of domestic goods, and resulting in losses in real incomes. To avoid such losses, residents hold at least part of their assets overseas. High capital account deficits may have a similar effect on expectations of exchange rate, and then may stimulate capital flight.

Several econometric analyses have revealed that real exchange rate overvaluation leads to high capital flight (Dornbush, 1986; Cuddington, 1987; Ketkar and Ketkar, 1989; Pastor, 1990; Smit and Mocke, 1991; Hermes and Lensink, 1992; Muscatelli and Hallett, 1992; Sheets, 1996; Collier et al., 2001; Fedderke and Liu, 2002; Harrigan et

al., 2002; Collier et al., 2004a; Ndikumana and Boyce, 2003). However, Davies (2008) found that real exchange rate overvaluation index, emphasized by Dollar (1992), does not significantly affect capital flight.

Rate of return differentials

The phenomenon of capital flight may occur simply because returns on assets are higher overseas, compared with assets held domestically (Hermes et al., 2002b). This phenomenon is driven predominantly by the risk-corrected rates of return available on domestically held assets (Collier et al., 2004b).

Most of the studies on the determinants of capital flight take that into account by adding a variable which measures the real interest rate differential (Pastor, 1990; Ajayi, 1992; Boyce, 1992; Fedderke and Liu, 2002; Vos, 1992; Boyce, 1993). Alam and Quazi (2003) found that higher real interest rate differentials between the capital-haven countries and Bangladesh contribute to capital flight from Bangladesh. Other authors focused rather on interest rate and not on interest rate differential (Cuddington, 1986; Dooley, 1986; Muscatelli and Hallet, 1992; Sheets, 1996; Collier et al., 2004a). According to Quazi (2004), financial repression contributes significantly to capital flight from Bangladesh.

Financial development

Financial development can reduce capital flight if accompanied by an expansion of opportunities for domestic portfolio diversification (Ndikumana and Boyce, 2003). However, according to these authors, financial deepening can also encourage capital flight if it facilitates international capital transfers. In particular, if financial markets are liberalized and international capital movements are deregulated, domestic capital may be expected to flow abroad as long as risk-adjusted returns are higher elsewhere.

Few empirical studies have examined the relationship between financial development and capital flight. Lensink et al (1998) found a negative and significant effect of demand deposits on capital flight. Using the money supply in the strict sense (M2)/GDP ratio as a measure of financial development, Collier et al. (2001) found that this ratio has no statistically significant impact on capital flight. Ndikumana and Boyce (2003) revealed that the credit to the private sector has a negative and statistically significant effect on capital flight from sub-Saharan Africa, whereas the influence of this variable on capital flight is not significant in Ndikumana and Boyce (2007). With respect to the ratio of total liquid liabilities (M3) to GDP (which serves as a proxy for the size of the financial system), findings from Ndikumana and Boyce (2003) show no significant relationship between this indicator and capital flight. In Cerra et al. (2008), the growth rate of domestic credits has no robust influence on capital flight, and is significant in some regressions and insignificant in others. The links between financial development and capital flight thus appear to be sensitive to the choice of the measure of financial intermediation.[3]

Governance and institutional quality

In a context of poor governance and weak institutions, corrupt elites take advantage of their favourable position to amass personal fortunes that they hold abroad (Boyce and

Ndikumana, 2001), thus operating massive capital flight episodes. In such a context, the preferences of the elite are inconsistent with the national interest.

Cerra et al. (2008) found that weak institutions, particularly effective institutional constraints on the executive power, have an independent impact on capital flight. According to Loungani and Mauro (2000), institutional weaknesses, particularly corruption, are among the important causes of capital flight from Russia. Indeed, the residents can decide to hold their assets overseas due to the perceived high level of corruption. Identifying corruption as one dimension of poor governance, Le and Rishi (2006) showed that this factor has a positive and significant impact on capital flight. Ajayi (1992), Awung (1996), and Ndikumana and Boyce (2003) found that a high corruption level worsens capital flight. However, Collier et al. (2004b) revealed that corruption is not a central variable in explaining capital flight.

Political risks and war

Political instability may increase the risks and uncertainty regarding the policy environment and its outcomes for domestic wealth holders. Confidence in the domestic political situation may fall, inducing more capital flight episodes since residents may channel their assets overseas due to the increasing risks of losses in their domestic assets.

With the exception of Dooley (1988) who found a negative link between capital flight and political risks, other empirical studies concluded that a rise in capital flight is due to growing political risk (Dornbush, 1986; Smit and Mocke, 1991; Nyatepe-Coo, 1994; Lensink et al., 1998; Hermes and Lensink, 2001; Fedderke and Liu, 2002; Alam and Quazi, 2003; Ndikumana and Boyce, 2003; Quazi, 2004; Le and Zak, 2006). On the contrary, Nyoni (2000) found that political risk is not an important determinant of capital flight from Tanzania. Lensink et al. (2000) revealed that war significantly increases capital flight from developing countries. According to Collier et al. (2004a), civil war is among the important determinants of capital flight. Fielding (2004) revealed that the intensity of the Palestinian-Israeli civil conflict induces important capital outflows. In Davies (2008), war positively and significantly affects capital flight from 77 developing countries.

Uncertainty of public policies

Uncertain public policies may have an impact on domestic wealth holders. Indeed, residents may decide to hold their assets abroad, based on a lack of confidence in the domestic environment and its adverse consequences for the future value of their assets. The possibility that government policies will erode the future value of asset holdings may increase. Therefore, uncertainty of public policies may generate capital flight.

Hermes and Lensink (2001) found that uncertainty with respect to budget deficit, tax payments, government consumption and real interest rates, positively and significantly influences capital flight, and uncertainty with respect to inflation has no significant effect. Le and Zak (2006) found also that policy variability has a statistically significant impact on capital flight for a panel of 45 developing countries over 16 years.

3. Capital flight from FZ countries: Estimation and results

This report uses annual data for a panel comprising all the 15 countries in the FZ. The time period is 1970–2005 for all countries, except for Comoros (1980–2005),[4] Congo (1971–2005); Equatorial Guinea (1987–2005), which became a member of the FZ on 1 January 1985;[5] Gabon (1970–2004); Guinea-Bissau (1998–2005), which became a member of the FZ on 2 May 1997; and Mali (1985–2005), which joined the FZ on 1 June 1984.

Method of measuring capital flight from FZ countries

Using the residual method, this report defines capital flight as all resident capital outflows because what really matters is that: "For countries that are faced with large current account deficits and with payments of their external debt (and which are then in need for foreign capital), capital outflows increase their difficulties to finance their net imports and the payments of their debts" (Hermes et al., 2002a:2). The choice of the residual method is also motivated by the fact that the other methods have important drawbacks. Indeed, Hermes et al. (2002a) argue that the Dooley method and the hot money method are conceptually wrong in so far as the distinction between normal and abnormal capital outflows is impossible on an empirical basis. They claim also that the asset method is too narrow.

This report uses two versions of the residual method: the World Bank (1985) version and that of Morgan Guaranty (1986). These measures are adjusted for exchange rate fluctuations, trade misinvoicing and inflation[6] according to Boyce and Ndikumana (2001) and Ndikumana and Boyce (2003, 2007).

Adjustment for exchange rate fluctuations

The World Bank's debt data are reported in a common currency, the US dollar. Yet countries hold debts denominated in a variety of currencies. Table 1 shows the currency composition of the 15 countries in the FZ long-term debt.

Table 1: Currency composition of the FZ countries' long-term debt in various currencies (%)

Countries	Deutsch mark	Euro	French Franc	Japanese Yen	UK Pound	Swiss Franc	SDR	US Dollar	Multiple Currencies	Other Currencies
Benin	1.3	1.1	20.7	0.6	0.6	0.2	1.2	35.9	7.9	30.5
Burkina Faso	4.6	0.5	22.6	0.0	2.5	0.0	1.5	37.2	11.9	19.3
Cameroon	10.3	8.6	23.8	0.3	2.0	0.5	0.1	21.2	12.2	21.0
Central African Republic	4.3	0.9	19.3	0.3	0.4	3.1	4.1	40.2	11.8	15.6
Chad	2.6	0.6	11.5	0	0.2	0	0.2	36.3	15.6	33.0
Comoros	0	1.9	29.5	0	0	0	0.9	24.9	4.7	38.1
Congo	2.3	6.0	30.2	0.1	3.8	0.6	0.4	21.9	4.7	30.0
Côte d'Ivoire	4.3	4.3	27.4	0.7	0.7	2.3	0.3	34.6	13.3	12.1
Equatorial Guinea	2.3	4.1	3.3	0.0	0.0	0.0	0.0	28.4	7.2	54.8
Gabon	5.3	7.5	38.0	0.9	3.4	0.6	0.0	24.2	6.0	14.0
Guinea Bissau	0.2	1.6	2.9	0.0	0.0	6.0	0.0	29.0	17.0	29.4
Mali	2.1	2.2	20.5	1.0	9.4	3.8	0.1	19.4	10.9	30.6
Niger	3.5	2.6	40.8	1.0	0.7	0.1	1.6	27.8	0.5	21.4
Senegal	6.0	2.3	23.4	1.2	0.2	0.4	0.6	33.3	8.0	24.5
Togo	13.0	2.4	13.4	2.2	3.6	7.3	0.5	34.0	4.6	18.8
Sample	4.1	3.1	21.8	0.6	1.8	1.7	0.8	29.9	9.1	26.2

Note: These figures are the average value of the annual data on the currency composition of the FZ countries' long-term debt in various currencies over the time period 1970 to 2005.
SDR = IMF Special Drawing Rights.
Source: Author's computations using data from World Bank (2007a).

In the World Bank data on debt stocks, these are converted to dollars using the end-of-year exchange rate. The exchange rate fluctuations lead to a change in the debt stock, and thus a variation in the capital flight measure based on Equation 1. To correct for these potential discrepancies, Boyce and Ndikumana (2001) adjust the change in long-term debt stock for fluctuations in the exchange rate of the dollar against other currencies as follows:

$$\Delta DETAJU_t = DET_t - NOUDET_{t-1} \tag{9}$$

Where ÄDETAJU$_t$ is the adjusted change in debt for fluctuations in the exchange rate of the dollar against other currencies; DET$_t$ is the stock of the debt of year t measured by the exchange rate at the end of year t; and NOUDET$_{t-1}$ is the stock of the debt of year t-1 measured by the exchange rate at the end of year t. NOUDET$_{t-1}$ is computed as follows:

$$NOUDET_{i,t-1} = \sum_{j=i}^{7} (\alpha_{ij,t-1} * DETLT_{i,t-1}) / (TC_{jt} / TC_{j,t-1}) + CRFMI_{i,t-1} / (TC_{DTS,t} / TC_{DTS,t-1}) + AUTRELT_{i,t-}1 + MULTLT_{i,t-1} + DETLTEU_{i,t-1} + DETCT_{i,t-1} \tag{10}$$

Where DETLT is the total long-term debt; α_j is the proportion of long-term debt held in currency j (j = French franc, the German Deutschmark, the Japanese yen, the Swiss franc, the IMF Special Drawing Rights (SDR), the UK pound, and the Euro);[7] TC is the end-of-year exchange rate of the currency of denomination against the dollar (expressed as units of currency per US dollar); CRFMI is the use of IMF credit denominated SDR; AUTRELT is long-term debt denominated in other unspecified currencies; MULTLT is long-term debt denominated in multiple currencies; DETLTEU is long-term debt denominated in US dollars; and DETCT is short-term debt.

This adjustment of capital flight for exchange rate fluctuations modifies (1) and (2). Taking into account this adjustment, (1) and (2) become respectively (11) and (12):

$$FC(BM)_{TCit} = (\Delta DETAJU_i + INDE_{it}) - (CC_{it} + \Delta RES_{it}) \quad (11)$$

$$FC(MG)_{TCit} = (\Delta DETAJU_{it} + INDE_{it}) - (CC_{it} + \Delta RES_{it}) - \Delta ABD_{it} \quad (12)$$

Where $FC(BM)_{TC}$ is capital flight computed using the World Bank (1985) version adjusted for exchange rate fluctuations; and $FC(MG)_{TC}$ is capital flight computed using the Morgan Guaranty (1986) version adjusted for exchange rate fluctuations.

Adjustment for trade misinvoicing

Following Ajayi (1997), Boyce and Ndikumana (2001), Ndikumana and Boyce (2003, 2007), I estimate trade misinvoicing between FZ countries and their industrialized country trading partners by comparing the export and import data from FZ countries with those from their trading partners. Total trade misinvoicing (FALSCOM) is computed as:

$$FALSCO_{it} = \frac{DEX_i}{PMEX_i} + \frac{DIM_i}{PMIM_i} \quad (13)$$

Where DEX is the export discrepancies between the FZ countries and the industrialized countries; DIM is the import discrepancies between the FZ countries and the industrialized countries; PMEX is the average shares of the industrialized countries in the FZ countries' exports; and PMIM is the average shares of industrialized countries in the FZ countries' imports. DEX and DIM are computed as follows:

$$DEX_{it} = IMPI_{it} - (EXPAZF_{it} * CAF_t) \quad (14)$$

$$DIM_{it} = IMPAZF_{it} - (EXPI_{it} * CAF_t) \quad (15)$$

Where IMPI is the value of the industrialized countries' imports from the FZ countries as reported by the industrialized trading partners; IMPAZF is the FZ countries' imports from the industrialized countries as reported by the FZ countries; EXPAZF is the FZ countries' exports to the industrialized countries as reported by the FZ countries; EXPI is the industrialized countries' exports to the FZ countries as reported by the industrialized trading partners; and CAF is the factor representing the cost of freight and insurance (c.a.f/f.a.b).

Inflation adjustment

Given that all data are in US dollars, I used the US producer price index to adjust capital flight for inflation. The resulting data are useful in examining the year-to-year changes in real capital flight. Real capital flight (adjusted for exchange rate fluctuations, trade misinvoicing and inflation) is calculated as follows:

$$FCR(BM)_t = \frac{(\Delta DETAJU_t + INDE_{it}) - (C_t + \Delta RES_t) + FALSCOM_t}{IPPEU_t} \quad (16)$$

$$FCR(MG)_t = FCR(BM)_t - \frac{\Delta ABD_t}{IPPEU_t} \quad (17)$$

Where FCR(BM) is real capital flight calculated using the World Bank (1985) version of residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation; FCR(MG) is real capital flight calculated using the Morgan Guaranty (1986) version of residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation; ABD indicates the assets held overseas by the domestic banks; and IPPEU is the US producer price index.

Results of the estimation of capital flight from the FZ countries

Table A4 indicates annual values of real capital flight, for all 15 FZ countries. These data reveal that capital flight is not solely a phenomenon of the onset of the debt crisis of the 1980s. Indeed, for several countries in the sample, the magnitudes of capital flight before 1980 are higher than those of 1980.

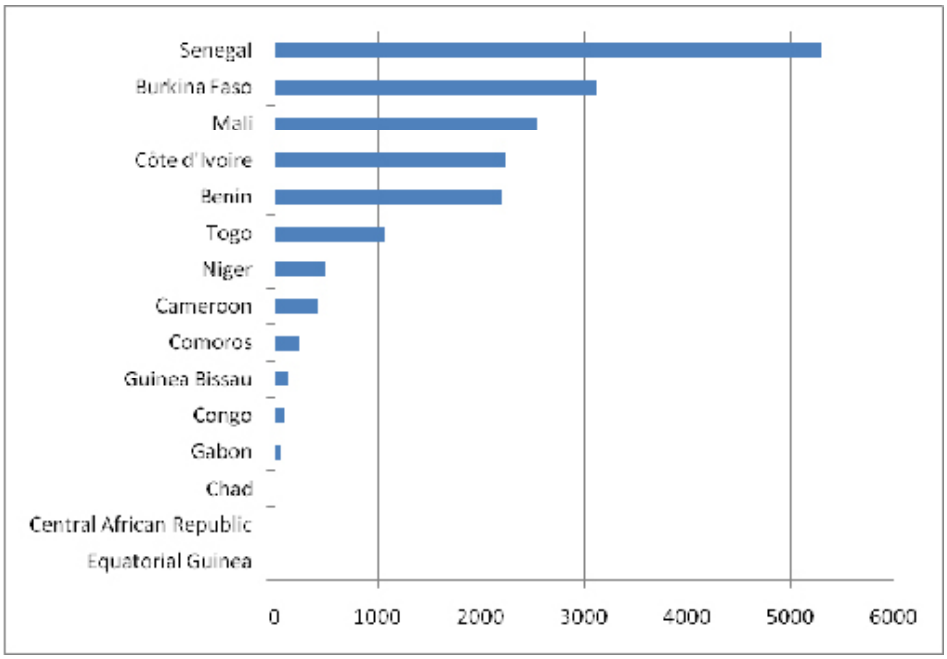
Table 2 reports total and mean annual real capital flight in the FZ in the period 1970 to 2005, and computes the ratio of capital flight to GDP and to external debt. The data in this table reveals contrasted capital movements across FZ countries. Indeed, capital flight

is found to be positive for seven countries (Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire and Gabon) implying that these countries have experienced net capital outflows in the period. Among these countries, Côte d'Ivoire had the highest amount with a remarkable US$34.4 or US$34.1 billion in capital flight, representing US$956.7 or US$946.1 million annually. With the World Bank method, Côte d'Ivoire is followed, in order, by Cameroon, Congo, Gabon, Chad, Burkina Faso and Central African Republic with US$1.6 billion (Table 2). This classification holds true with the Morgan Guaranty method, and remains robust when mean annual real capital flight is used as an indicator of comparisons.

However, the ratio of capital flight to GDP and to external debt is not heavier in countries experiencing the most important positive capital flight in absolute terms. Indeed, when capital flight is measured as a percentage of GDP,[8] Congo leads with a ratio of 329.8% or of 325.6% followed by Côte d'Ivoire, Gabon, Central African Republic, Cameroon, , and Chad and Burkina Faso (with a ratio of capital flight to GDP lower than 100%). With respect to the ratio of capital flight to external debt,[9] Côte d'Ivoire leads with 320.8% or 317.3%. Next are Gabon, Congo, Cameroon, Central African Republic, Chad and Burkina Faso which has 109.8% or 97.7%.

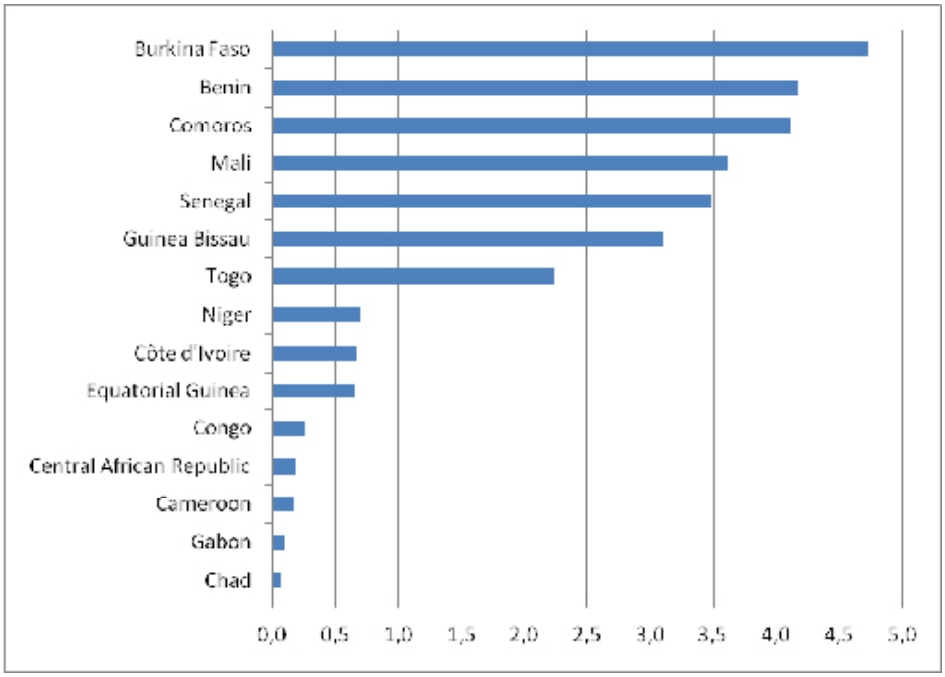
Real capital flight is negative for the eight other countries of the sample: Benin, Comoros, Equatorial Guinea, Guinea-Bissau, Mali, Niger, Senegal and Togo,[10] suggesting that these countries have benefited from net capital inflows. One explanation for negative capital flight may be related to remittances reported in Table A5 in terms of total volume, mean annual and in percentage of GDP. Indeed, with the ratio of remittances to GDP, Benin, Comoros, Equatorial Guinea, Guinea-Bissau, Mali, Niger, Senegal and Togo, are the top 10 recipients of remittances in the FZ (Figure 1). Taking account of total remittances, I find that except for Equatorial Guinea, those countries are also in the top 10 recipients of remittances in the FZ (Figure 2). Moreover, according to Gupta et al. (2007), Benin, Comoros, Guinea-Bissau, Mali, Senegal and Togo, are among the top 10 recipients of remittances in sub-Saharan Africa, and in terms of volume than in terms of percentage of GDP or of exports. Based on an altruistic motive, the remittance inflows can thus explain negative capital flight for the eight countries mentioned above which experience high migration levels and then increasing total earnings of the migrants (Lucas and Stark, 1985; Chami et al., 2003; Jadhav, 2003). Among these eight countries, six are members of the West African Economic and Monetary Union (WAEMU) zone (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo). Therefore, the importance of remittance inflows can also be explained by the domestic economic and political environment (Gupta, 2005) that is better in the WAEMU zone which has a history of monetary stability and low inflation.

Figure 1: Remittances in the Franc Zone, % of GDP, 1974-2005



Source: World Bank (2007b).

Figure 2: Remittances in the Franc Zone, total, 1974-2005, (millions of US$)



Source: World Bank (2007b).

As a whole, real capital flight for the 15 FZ countries is massive using both the World Bank and the Morgan Guaranty methods (Table 2). Therefore, the group of 15 FZ countries has experienced net capital outflows in the period.

Inside the FZ, the magnitude of capital flight is higher in the Monetary and Economic Community of Central Africa (CEMAC) zone (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon) than in the WAEMU zone (Table 2). The predominance of capital flight in the CEMAC zone can be explained by the productive structure of the CEMAC countries which are all oil and other natural resources producing countries.

Table 2: Total real capital flight in the FZ (million 2000 US$, % of GDP and % of external debt), 1970–2005[a]

Country	Real capital flight, World Bank[b]				Real capital flight, Morgan Guaranty[c]			
	Total	Mean annual	% of GDP	% of debt	Total	Mean annual	% of GDP	% of debt
Benin	-4,711.7	-130.9	-171.1	-254.0	-5,036.2	-139.9	-182.9	-271.5
Burkina Faso	2,244.7	62.4	67.3	109.8	1,998.2	55.5	59.9	97.7
Cameroon	14,885.1	413.5	123.5	208.2	14,415.7	400.4	119.6	201.6
Central African Republic	1,633.8	45.4	178.0	160.9	1,605.8	44.6	175.0	158.1
Chad	2,247.5	62.4	86.4	137.6	2,177.3	60.5	83.7	133.3
Comoros	-166.5	-6.4	-71.9	-57.6	-174.3	-7.3	-75.3	-60.3
Congo	13,147.4	375.6	329.8	221.5	12,979.4	370.8	325.6	218.6
Côte d'Ivoire	34,441.8	956.7	329.0	320.8	34,058.3	946.1	325.4	317.3
Equatorial Guinea	-207.9	-10.9	-5.5	-78.1	-354.2	-18.6	-9.3	-133.0
Gabon	11,433.1	326.7	217.4	275.5	11,006	314.5	209.3	265.2
Guinea Bissau	-294.8	-36.8	-138.1	-42.6	-280.7	-35.1	-131.5	-40.5
Mali	-2,022.0	-96.3	-61.4	-68.1	-2,254.6	-107.4	-68.4	-75.9
Niger	-6,015.8	-167.1	-275.5	-305.0	-6,127.6	-170.2	-280.6	-310.7
Senegal	-9,851.2	-273.6	-178.4	-259.7	-10,430.5	-289.7	-188.9	-275.0
Togo	-3,634.4	-101.0	-241.9	-212.8	-3,826.6	-106.3	-254.7	-224.1
WAEMU[d]	10,156.5	26.7	34.7	39.4	8,100.2	19.1	27.7	31.4
CEMAC[e]	43,139.0	202.1	150.8	214.1	41,830.5	195.4	146.2	207.6
Franc Zone	53,129.1	94.6	91.4	115.0	49,756.4	87.9	85.6	107.7

Source: Author's computations using data from: World Bank 2007a; World Bank 2007c; IMF 2007; IMF 2004a; IMF 2004b; IMF, *Selected Issues and Statistical Appendix* (in www.imf.org).

a. The time period is 1970–2005 for all countries, except for Comoros (1980–2005), Congo (1971–2005), Equatorial Guinea (1987–2005), Gabon (1970–2004), Guinea-Bissau (1998–2005), and Mali (1985–2005).

b. Capital flight is measured using the World Bank (1985) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

c. Capital flight is measured using the Morgan Guaranty (1986) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

d. WAEMU: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.

e. CEMAC: Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon.

4. The data

The dependent variable

The dependent variable is the ratio of real capital flight to GDP. Capital flight is estimated using the World Bank (1985) and the Morgan Guaranty (1986) versions of the residual method, adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001). The data on annual real capital flight from the 15 FZ countries of the sample are indicated in Table A4. This data will be useful in investigating econometrically the determinants of capital flight.

The independent variables

Past capital flight

As an indicator of past capital flight, I consider a lag value of the ratio of capital flight to GDP. On looking at the theory and empirical evidence (Ndikumana and Boyce, 2003, 2007), the coefficient of past capital flight is expected to be positive.

Capital inflows

As indicators of capital inflows, I use the following variables: The ratio of the change in external debt adjusted for exchange rate fluctuations (see Equations 9 and 10) to GDP; the ratio of the change in short-term debt to GDP; the ratio of aid to GDP; the ratio of foreign direct investment to GDP; and the ratio of remittances to GDP. As indicated in the literature, the effects of the change in debt, aid and foreign direct investment on capital flight are not known *a priori*, being positive or negative. The coefficient of remittances is expected to be negative.

Macroeconomic environment

Several macroeconomic environment indicators can induce capital flight: The growth rate differential of real GDP between the countries in the FZ and France; the inflation rate differential between the countries in the FZ and France;[11] the primary budget deficit; the change in real effective exchange rate computed by following Ndikumana

and Boyce (2003) who used the approach developed in Easterly and Yu (2000), that is the consumer price index divided by the product between official exchange rate and the France consumer price index; the terms of trade; the change in the ratio of total exports to GDP; and the change in the ratio of fuel exports to GDP (this indicator is used as a proxy for natural resources abundance).

In accordance with the economic theory, capital flight is expected to negatively affect economic growth and terms of trade, and positively affect inflation rate, budget deficit, change in real effective exchange rate, total exports and fuel exports.

Rate of return differentials

Following Ndikumana and Boyce (2003), the following indicator of rate of return differentials is considered: The difference between the domestic deposit rate and the France Treasury-Bill rate with an adjustment for depreciation of the local currency. That is, the domestic deposit rate minus the France Treasury-Bill rate minus the percentage change in the official exchange rate. A negative coefficient of this variable is expected.

Financial development

As a measure of financial intermediation, I use three indicators: the ratio of total liquid liabilities (M3) to GDP, which serves as a proxy for the size of the financial system (the expected effect is positive); the credit to the private sector as a percentage of GDP, a measure of availability of credit in the domestic financial market (the expected effect is ambiguous: positive or negative); and the ratio of deposits to GDP. These deposits are defined as the sum of demand deposits, time, saving, and foreign currency deposits (IMF, 2007a. The expected effect is ambiguous: positive or negative.

Governance and institutional quality

The constraints on the executive power are used to capture the quality of institutions (Acemoglu and Thaicharoen, 2003; Cerra et al., 2008). The data on the quality of institutions are sourced from the Polity IV Project database. The constraint on the executive power variable is constructed by the Polity IV project by coding the authority characteristics of states in the world. The variable measures the extent of regular institutional constraints on executive power. These constraints arise from accountability groups, such as legislatures and judiciaries that have equivalent or greater effective authority, or can impose constraints on executive behaviour in most activities. The constraint on the executive power variable takes values ranging from 1 (unlimited executive authority) to 7 (executive parity or subordination). The effect of this variable on capital flight is expected to be negative.

As a proxy of governance, the Polity2 index (Revised Combined Polity Score) from the Polity IV Project database is utilized (Ndikumana and Boyce, 2007). This variable is a modified version of the polity2 variable (Combined Polity Score) added in order to facilitate the use of the Polity regime measure in time-series analyses. The Polity2 score is computed by subtracting the Institutionalized Autocracy score from the Institutionalized Democracy score; the resulting unified polity scale ranges from +10

(strongly democratic) to -10 (strongly autocratic). The polity2 variable is expected to affect negatively capital flight.

Armed conflict

As indicator of armed conflict, I use the intensity level sourced from Uppsala Conflict Data Program (UCDP)/Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO) Armed Conflict Dataset, version 4-2008. Armed conflict is expected to positively affect capital flight.

Table A6 provides the values of the intensity level of armed conflict that ranges from 1 to 2 for the African countries in the FZ of the sample. In years during which armed conflict episodes are not observed, the intensity level is 0. There were no armed conflict episodes in Benin and Gabon between 1970 and 2005.

Uncertainty of public policies

I consider the following types of uncertainty of public policies: Uncertainty with respect to budget deficits; uncertainty with respect to tax payments; uncertainty with respect to government consumption; uncertainty with respect to inflation; and uncertainty with respect to real interest rate. These public policy uncertainties are estimated using the approach below (Hermes and Lensink, 2001):

$$P_t = a_1 + a_2 T + a_3 P_{t-1} + a_4 P_{t-2} + e_t \tag{18}$$

Where P is the public policies variables (budget deficits; tax payments; government consumption; inflation; and real interest rate); T is a time trend; a_3 and a_4 are the autoregressive parameters; and e_t is an error term.

Equation 18 is estimated for all the 15 FZ countries of the sample over the period 1970 to 2005. Following Ndikumana and Boyce (2007), I proxy uncertainty with respect to inflation by inflation variability, measured as the absolute value of the difference between actual inflation and predicted inflation. The predicted inflation is computed from equation 18. The same approach is used to compute budget deficit variability, tax variability, government consumption variability and interest rate variability. These five types of uncertainty of public policies are expected to positively influence capital flight.

Descriptive statistics of all dependent and explanatory variables are presented in Table 3. A correlation matrix of all variables used is presented in Table 4.

Table 3: Descriptive statistics

	Mean	Median	Minimum	Maximum	Standard deviation	Observations
FCRP*	0.008	0.014	-0.80	1.10	0.1775	468
FCRP#	0.005	0.012	-0.81	1.09	0.1762	466
FCRP*$_{-1}$	0.01	0.016	-0.80	1.10	0.1767	454
FCRP#$_{-1}$	0.0075	0.014	-0.81	1.09	0.1756	452
DIFINF	0.023	-0.0017	-0.34	1.08	0.14	540
CPP	0.16	0.14	0.016	0.48	0.089	496
IDEP	0.02	0.0055	-0.10	0.84	0.087	490
GOUVER	-3.87	-6	-9	8	4.83	531
ÄDETAJUP	0.05	0.041	-0.59	0.62	0.10	515
CONEX	-1.54	2	-88	7	17.83	531
AIDP	0.13	0.102	-0.002	0.84	0.12	513
DIFTCP	0.007	0.0068	-0.32	0.69	0.074	540
DBPP	-0.012	-0.012	-0.37	0.40	0.07	308
ÄTCER	-0.000034	-9.02e-06	-0.0016	0.0011	0.00035	384
ÄEXP	0.013	0.0055	-0.32	1.12	0.1007	479
TECH	1.13	1.057	0.39	3.59	0.38	420
DIFIDB	-11.22	-9.88	-272.06	115.82	67.21	413
DEP	0.46	0.11	0.006	20.04	2.07	492
TSF	0.20	0.19	0.050	0.69	0.077	496
TFMP	0.019	0.0013	-0.02	0.29	0.035	514
ÄDETCTP	0.0029	0.0011	-0.31	0.36	0.046	515
ÄEXFU	0.011	0.00018	-0.66	0.58	0.089	201
INTCONF	0.14	0	0	2	0.39	540
VARINF	0.077	0.042	0.00016	0.86	0.101	477
VARDB	0.032	0.021	0.000076	0.47	0.042	291
VARTAX	0.017	0.01	0.000095	0.55	0.035	320
VARDCG	0.016	0.011	0.000029	0.19	0.019	477
VARTI	0.0065	0.0032	0.000029	0.27	0.017	410

FCRP*: World Bank (1985) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
FCRP#: Morgan Guaranty (1986) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
All variable descriptions and sources are listed in Table A7.

Table 4: Correlation coefficients

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FCRP*:1	1													
FCRP#:2	0.99	1												
$FCRP^{*}_{-1}$:3	0.499	0.52	1											
$FCRP^{\#}_{-1}$:4	0.498	0.52	0.989	1										
DIFINF:5	0.21	0.188	-0.15	-0.16	1									
CPP:6	-0.298	-0.29	-0.08	-0.07	-0.43	1								
IDEP:7	-0.28	-0.298	-0.24	-0.23	-0.17	0.07	1							
GOUVER:8	-0.20	-0.23	-0.35	-0.38	0.16	-0.25	0.11	1						
ÄDETAJUP:9	-0.029	-0.022	-0.069	-0.063	-0.051	0.21	-0.13	0.027	1					
CONEX:10	0.019	0.016	-0.0065	-0.026	0.057	-0.081	-0.048	0.15	0.12	1				
AIDP:11	-0.19	-0.20	-0.15	-0.19	0.11	0.31	0.028	0.17	0.34	0.081	1			
DIFTCP:12	0.074	0.06	-0.066	-0.099	0.057	-0.23	0.18	0.27	0.05	0.17	0.28	1		
DBPP:13	0.12	0.14	-0.06	-0.088	0.13	-0.33	-0.099	-0.046	-0.21	-0.0063	-0.37	0.065	1	
ÄTCER:14	0.102	0.106	0.32	0.31	-0.59	0.32	0.16	-0.13	0.25	-0.05	-0.07	-0.01	-0.20	1
ÄEXP:15	0.062	0.061	-0.012	-0.035	0.25	-0.015	-0.29	-0.10	0.14	-0.03	0.012	-0.15	0.17	-0.0012
TECH:16	-0.012	-0.0075	-0.0009	-0.0029	-0.11	0.27	-0.16	-0.42	-0.10	-0.16	0.23	0.14	0.18	0.03
DIFIDB:17	0.016	0.013	0.2	0.19	-0.67	0.32	0.15	-0.10	0.22	-0.11	-0.05	0.06	-0.073	0.92
DEP:18	-0.46	-0.48	-0.36	-0.39	-0.065	0.2	0.26	0.039	0.092	-0.036	0.125	0.1117	-0.088	0.128
TSF:19	-0.31	-0.34	-0.23	-0.27	-0.129	0.49	0.19	0.07	0.12	-0.12	0.51	0.10	-0.31	0.14
TFMP:20	-0.40	-0.42	-0.33	-0.37	-0.05	-0.009	0.11	0.52	0.17	0.21	0.29	0.27	-0.17	0.034
ÄDETCTP:21	0.048	0.052	-0.065	-0.068	-0.29	0.027	-0.029	0.0365	0.65	0.0074	0.05	0.074	0.0034	0.23
ÄEXFU:22	0.091	0.108	0.015	0.0027	-0.013	0.22	-0.05	-0.017	0.115	-0.05	0.107	-0.103	-0.41	0.05
INTCONF:23	-0.165	-0.16	-0.223	-0.222	0.019	0.24	0.033	0.15	0.14	-0.24	0.12	-0.066	-0.0224	-0.0221
VARINF:24	0.125	0.117	0.20	0.21	0.38	-0.15	-0.26	-0.117	0.038	0.08	-0.23	-0.23	0.125	-0.41
VARDB:25	0.042	0.041	0.33	0.37	-0.25	0.08	-0.13	-0.28	-0.0085	0.0042	-0.34	-0.29	-0.17	0.16
VARTAX:26	-0.022	-0.041	0.13	0.15	-0.056	0.13	-0.08	-0.27	0.05	-0.06	-0.19	-0.28	-0.028	-0.051
VARDCG:27	-0.037	-0.041	0.18	0.2	0.0104	0.15	-0.031	-0.121	-0.03	-0.03	-0.093	-0.26	-0.026	-0.041
VARTI:28	-0.119	-0.117	-0.14	-0.14	0.036	0.16	-0.12	0.058	0.22	0.071	0.25	-0.0099	0.0078	-0.123

FCRP*: World Bank (1985) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
FCRP#: Morgan Guaranty (1986) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
All variables are numbered.
All variable descriptions and sources are listed in Table A7.

Table 4 (continued): Correlation coefficients

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
ÄEXP:15	1													
TECH:16	0.07	1												
DIFIDB:17	0.0166	0.1703	1											
DEP:18	0.0303	0.16	0.20	1										
TSF:19	0.014	0.28	0.20	0.66	1									
TFMP:20	0.143	-0.142	0.134	0.25	0.27	1								
ÄDETCTP:21	0.14	-0.033	0.29	0.034	0.014	0.061	1							
ÄEXFU:22	-0.18	-0.21	-0.022	-0.046	0.13	0.03	0.068	1						
INTCONF:23	0.080	-0.07	-0.0013	-0.086	0.053	0.19	0.008	-0.014	1					
VARINF:24	-0.094	-0.29	-0.51	-0.20	-0.32	-0.31	-0.16	-0.055	-0.101	1				
VARDB:25	-0.125	-0.153	0.096	-0.092	-0.22	-0.26	-0.006	-0.032	-0.15	0.34	1			
VARTAX:26	0.0214	-0.227	-0.075	0.026	-0.13	-0.08	-0.046	0.14	-0.13	0.44	0.33	1		
VARDCG:27	-0.17	-0.25	-0.10	-0.02	-0.068	-0.26	-0.24	0.03	-0.12	0.52	0.26	0.53	1	
VARTI:28	-0.051	-0.032	-0.055	-0.104	0.070	0.021	0.091	-0.025	0.17	0.078	-0.032	-0.068	0.027	1

FCRP*: World Bank (1985) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
FCRP#: Morgan Guaranty (1986) capital flight measure adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).
All variables are numbered.
All variable descriptions and sources are listed in Table A7.

5. Econometric analysis

Methodology

The existing theory does not offer a clear-cut way of determining, *a priori,* which independent variables should be included in the empirical model of the determination of capital flight for a particular sample of countries (Ndikumana and Boyce, 2003). Hence, a stepwise approach was used, adding explanatory variables one by one and retaining those that are statistically significant. A combination of five explanatory variables remains significant when used simultaneously: The lag of capital flight, inflation differential, credit to the private sector, the lag of foreign direct investment, and governance. The baseline equation can thus be represented as follows:

$$FCRP_{it} = \varphi_1 FCRP_{i,t-1} + \varphi_2 DIFINF_{it} + \varphi_3 CPP_{it} + \varphi_4 IDEP_{i,t-1} + \varphi_5 GOUVER_{it} + \varphi_6 X_{it} + u_t + v_t + \varepsilon_{it} \quad (19)$$

Where FCRP is the ratio of capital flight to real GDP; DIFINF represents the inflation differential between the countries in the FZ and France; CPP indicates the ratio of credit to the private sector to GDP; IDEP is the ratio of foreign direct investment to GDP; GOUVER is the governance indicator; X includes the other remaining variables described in section 4; *u* is the country-specific fixed effect; *v* is the time-specific fixed effect; and e is the error term.

The regressions were run using the generalized method of moments (GMM) to address endogeneity problems, and the Blundell and Bond (1998) system GMM estimator is implemented. The study tested for the validity of the instrumental variables using the Hansen test and for the autocorrelation of the model errors by referring to the Arellano and Bond (1991) test. Annual panel data were used.

Empirical results

The results for the regressions where capital flight was measured using the World Bank (1985) version of the residual method are reported in Table 5 and the results for the regressions where capital flight was computed using the Morgan Guaranty (1986) version of residual method are reported in Table 6.

Past capital flight positively and significantly affects current capital flight, implying that capital flight tends to persist over time because of the habit-formation effect which suggests that private actors gain experience in different capital flight episodes. The influence of the inflation differential between the FZ countries and France on capital flight was found to be positive and significant, implying that higher inflation in the domestic environment is a predictor of future capital flight episodes. The impact of the credit to the private sector is negative and variably significant. This result suggests that private actors prefer to invest resources they receive from banks locally, reducing capital flight. The effect of foreign direct investment on capital flight is found to be negative and significant, suggesting that an increasing volume of foreign direct investment helps reduce the magnitude of capital flight since investors can expect better macroeconomic performances. The effect of the governance indicator on capital flight is found to be negative and statistically significant, implying that efforts undertaken to promote better governance contribute to curtail capital flight.

Capital inflows

The findings showed that change in external debt positively and significantly influenced capital flight from the FZ. The coefficients of change in external debt reported in Tables 5 and 6 range from roughly 0.91 to 1.02, with an average value of 0.96. Since capital flight and change in external debt are measured in percentages of GDP, this result implies that for every dollar of external borrowing by an FZ country in a given year, 96 cents are channelled overseas as capital flight. Change in external debt appears then to be one of the most important causes of capital flight. Indeed, corrupt leaders can embezzle part of external debt and channel the resources overseas in form of capital flight: A phenomenon known as debt-fuelled capital flight.

Short-term debt was among the most important factors explaining capital flight, with coefficients ranging from 0.86 to 0.89 (Tables 5 and 6), with an average of approximately 0.87. Therefore, a one-dollar increase in short-term debt generates 87 cents of capital flight. One explanation may be related to the volatility of short-term debt (Rodrik and Velasco, 1999) that leads to macroeconomic instability.

The effect of aid on capital flight was positive and statistically significant. This result supports the Bauer (1981) presumption that a part of aid can be used to finance capital flight: A situation I refer to as aid-fuelled capital flight.

The coefficient of remittances was found to be negative and statistically significant. This implies that a rise in remittances induces a decline in capital flight to the extent that investors can expect better macroeconomic performance in the domestic environment as remittances are viewed as a new source of development finance (Ratha, 2003; Spatafora, 2005).

Macroeconomic environment

As expected, the economic growth rate differential between the FZ countries and France negatively affected capital flight, but this influence was not found to be significant. Consequently, a decline in the economic growth rate is not enough to induce investors to leave the domestic environment. On the contrary, they could judge this episode of

decline as transitory, preferring not to modify their domestic portfolio decisions. In other words, the economic growth rate is not a central indicator in explaining capital flight from the FZ countries.

Following Lensink et al. (1998), I considered the annual change in real effective exchange rate as a proxy for the exchange rate overvaluation.[12] The results indicate that the real effective exchange rate presents a positive and statistically significant coefficient, suggesting that a real exchange rate overvaluation induces investors to predict depreciation in the currency and to shift their portfolio composition in favour of foreign assets (Cuddington, 1986, 1987, cited in Ndikumana and Boyce, 2003). However, this interpretation should be taken with caution, especially in the case of the FZ countries, because an expectation of devaluation does not always lead to capital outflows. Indeed, in the FZ, there were big devaluation expectations before 1994, but capital flight did not increase.

The impact of total exports on capital flight was found to be positive and significant. This result implies that exports are an important factor that explain capital outflows from FZ countries. Indeed, in the literature, exports have been identified as a mechanism of capital flight (Ajayi, 1992); in other words, a channel through which capital flight occurs. Exporters tend to understate the value of their export revenues, so as to retain abroad the difference between their true value and their declared value (Boyce and Ndikumana, 2001) increasing capital flight.

The influence of natural resources exports on capital flight was tested using fuel exports as a proxy for natural resources abundance.[13] The results indicate that fuel exports positively and significantly affected capital flight, suggesting that the abundance of natural resources is a major cause of capital outflows. This is the phenomenon of natural resources-fuelled capital flight. Indeed, the abundance of natural resources can give rise to a rent-seeking mentality, and thus constitutes an important worsening factor of the corruption level in a given country (Leite and Weidmann, 1999; Stevens, 2003; Wurthmann, 2006).

The primary budget deficit presented the expected negative sign. However, the influence of this variable was found to be insignificant, a result that implies that a budget deficit does not induce important capital outflows from FZ countries.[14] Consequently, the presence of a budget deficit is not a fundamental criterion that could induce private savers to change their domestic portfolio choices in foreign assets.

As found in Gordon and Levine (1989) and Ajayi (1992), the terms of trade also appear to be important in explaining capital flight, with a negative and statistically significant coefficient. This result suggests that a fall in terms of trade increases capital outflows by inducing a macroeconomic imbalance which occurs in the form of balance of payments difficulties or budget deficit.

Rate of return differentials

The interest rate differential between FZ countries and France had the expected negative sign, but the effect of this variable on capital flight was quantitatively small and appeared to be insignificant. This empirical evidence shows that portfolio choice considerations, on the basis of the interest rate differential, are not an important indicator in explaining capital flight from the FZ countries.[15] Indeed, capital flight can be influenced both by marginal comparisons of yields and by major discontinuities.

Financial development

The effect of the ratio of deposits to GDP on capital flight was also negative and invariably significant. This empirical evidence implies that the more the domestic savings are, the more these resources can be used to finance domestic investment, reducing capital flight. However, the size of the financial system appears to be insignificant in explaining capital flight from the FZ countries. Therefore, the influence of financial development on capital flight depends on the choice of the measure of financial depth.[16]

Governance and institutional quality

The constraints on executive power had a negative and statistically significant effect on capital flight. This result suggests that strong constraints on executive power lead to an aggravation of the phenomenon of capital flight. In other words, bad institutional quality plays an important role in explaining capital flight from FZ countries. I explored whether governance and institutional quality are important routes through which external debt, aid and natural resource abundance could influence capital flight. The results indicate positive and significant coefficients of the interactions between external debt and governance, and between aid and governance. These results imply that external debt and aid finance the phenomenon of capital flight in a context of poor governance.[17] The findings also revealed negative and significant coefficients of the interactions between external debt and institutional quality, between aid and institutional quality, and between natural resources abundance and institutional quality. These results suggest that in the presence of strong constraints on the executive power (bad institutional quality), a proportion of external debt, aid and natural resources revenues leave FZ countries as capital flight.

Armed conflict

As expected, the intensity of armed conflict positively affects capital flight. However, this influence was found to be insignificant, suggesting that armed conflict episodes experienced in FZ countries have not caused important capital outflows from those countries. One explanation may be related to the frequency of the intensity level of the armed conflict episodes. Indeed, our computations using data from Table A6 show that 88.57% of all conflict episodes experienced in the FZ in the period 1970 to 2005 had the minimum intensity level of 1, while the maximum intensity level of 2 made up the remainder (11.43%). Most of the armed conflict episodes observed in the zone during this period were of very low intensity. Consequently, investors did not fear important losses in their domestic assets, preferring not to leave the domestic environment.

Uncertainty of public policies

All variables that capture the uncertainty of public policies had the expected positive sign. The government consumption variability and the real interest rates variability significantly affected capital flight; this effect did not depend on the methods used to measure capital flight in this study. The impact of the inflation variability and that of

the tax variability were also independent of the choice of the methods used, but these impacts were insignificant. On the contrary, the influence of the budget deficit variability was sensitive to the choice of method used in this study to measure capital flight. Indeed, when capital flight was measured using the World Bank (1985) method, the regressions indicated that uncertainty with respect to budget deficit significantly affected capital flight (Table 5). Using the Morgan Guaranty (1986) method, the findings showed that this uncertainty of public policies variable did not cause important capital outflows from the FZ countries (Table 6).

These findings imply that investors are most afraid of uncertainties in government consumption, real interest rates and budget deficit. The more uncertain the impact of these variables on the real value of the domestic assets of investors, the more they prefer to transfer their wealth overseas, increasing capital flight. On the contrary, inflation and tax payments do not present strong uncertainties that could induce investors to shift their portfolio composition in favour of foreign assets.

Table 5: Determinants of capital flight in the FZ (World Bank method[#])

Variables[##]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FCRP_{-1}$	0.262 (3.07)***	0.172 (2.81)**	0.146 (2.01)*	0.242 (3.16)***	0.160 (2.49)**	0.295 (3.36)***	0.336 (3.12)***	0.267 (3.59)***
DIFINF	0.232 (2.80)**	0.252 (3.43)***	0.248 (3.21)***	0.238 (2.37)**	0.260 (3.36)***	0.241 (2.56)**	0.268 (2.64)**	0.246 (2.20)**
CPP	-0.692 (1.95)*	-1.168 (3.48)***	-1.182 (3.53)***	-0.603 (1.45)	-1.051 (2.86)**	-0.512 (1.51)	-0.597 (1.51)	-0.381 (0.99)
$IDEP_{-1}$	-0.214 (4.06)***	-0.209 (3.23)***	-0.220 (3.31)***	-0.187 (2.99)***	-0.183 (2.86)**	-0.167 (3.12)***	-0.171 (3.19)***	-0.132 (2.37)**
GOUVER	-0.009 (3.37)***	-0.009 (2.76)**	-0.010 (3.06)***	-0.009 (2.72)**	-0.008 (2.33)**	-0.012 (3.46)***	-0.032 (3.38)***	-0.012 (2.98)***
ÄDETAJUP		0.973 (4.79)***	1.023 (5.05)***		0.955 (4.70)***			
ÄDETAJUP*GOUVER			0.044 (2.44)**					
$CONEX_{-4}$				-0.001 (2.47)**				
ÄDETAJUP*$CONEX_{-4}$					-0.014 (2.98)***			
$AIDP_{-1}$						0.626 (2.39)**	1.129 (2.48)**	0.686 (3.32)***
$AIDP_{-1}$*GOUVER							0.143 (2.79)**	

continued next page

Table 5: Continued

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$AIDP_{-1}$*$CONEX_{-4}$								-0.006
								(2.75)**
Constant	0.081	0.118	0.124	0.065	0.099	-0.029	-0.113	-0.062
	(1.62)	(3.07)***	(3.10)***	(1.09)	(2.15)**	(0.46)	(1.58)	(1.00)
Observations	451	451	451	419	419	451	451	419
Countries	15	15	15	15	15	15	15	15
AR(1) test	0.004	0.006	0.005	0.008	0.007	0.005	0.004	0.007
AR(2) test	0.393	0.117	0.369	0.106	0.084	0.542	0.841	0.527
Hansen test	0.549	0.341	0.593	0.480	0.428	0.460	0.591	0.721

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; ***significant at 1%.
Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the World Bank (1985) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A7.

Table 5 (continued): Determinants of capital flight in the FZ (World Bank method[#])

Variables[##]	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
$FCRP_{-1}$	0.255 (3.04)***	0.314 (2.95)**	0.266 (3.35)***	0.277 (3.48)***	0.227 (2.70)**	0.219 (2.10)*	0.245 (3.40)***	0.274 (3.23)***	0.270 (2.37)**
DIFINF	0.221 (2.77)**	0.181 (2.22)**	0.173 (1.96)*	0.307 (3.18)***	0.278 (2.33)**	0.267 (2.71)**	0.240 (2.86)**	0.238 (2.57)**	0.223 (2.86)**
CPP	-0.703 (2.01)*	-0.945 (1.83)*	0.011 (0.03)	-0.543 (1.32)	-0.331 (0.70)	-1.378 (1.85)*	-0.764 (2.09)*	-0.539 (1.45)	-0.366 (0.72)
$IDEP_{-1}$	-0.227 (4.37)***	-0.029 (0.26)	-0.188 (3.00)**	-0.327 (5.24)***	0.044 (0.18)	-0.170 (1.74)	-0.216 (3.96)***	-0.171 (2.60)**	-0.208 (3.13)***
GOUVER	-0.010 (3.36)***	-0.012 (2.61)**	-0.007 (2.37)**	-0.009 (3.02)***	-0.012 (4.69)***	-0.014 (2.01)*	-0.008 (2.79)**	-0.009 (3.17)***	-0.007 (2.22)**
$DIFTCP_{-1}$	-0.210 (1.01)								
DBPP		-0.103 (0.38)							
$ÄTCER_{-5}$			50.417 (2.25)**						
$ÄEXP_{-1}$				0.264 (3.06)***					
$TECH_{-2}$					-0.124 (2.44)**				
$DIFIDB_{-1}$						-0.000 (1.73)			
DEP_{-3}							-0.025 (9.91)***		

continued next page

Table 5 Continued

Variables##	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
TSF_{-1}								0.217	
								(0.63)	
$TFMP_{-7}$									-1.632
									(2.34)**
Constant	0.085	0.113	-0.014	0.059	0.154	0.177	0.105	0.013	0.069
	(1.75)	(1.70)	(0.24)	(1.01)	(1.46)	(1.71)	(2.06)*	(0.16)	(0.90)
Observations	451	263	307	441	353	385	427	449	377
Countries	15	15	14	15	12	15	15	15	15
AR(1) test	0.004	0.016	0.004	0.006	0.018	0.003	0.005	0.005	0.006
AR(2) test	0.375	0.432	0.999	0.561	0.525	0.283	0.321	0.393	0.179
Hansen test	0.615	0.303	0.059	0.401	0.458	0.532	0.336	0.313	0.111

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.
Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the World Bank (1985) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A7.

Table 5 (end): Determinants of capital flight in the FZ (World Bank method#)

Variables##	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
$FCRP_{-1}$	0.268 (5.04)***	0.532 (5.46)***	0.484 (4.96)***	0.262 (3.04)***	0.271 (3.40)***	0.286 (2.42)**	0.345 (2.67)**	0.255 (2.63)**	0.186 (2.21)**
DIFINF	0.265 (3.15)***	0.258 (2.44)**	0.283 (2.12)*	0.232 (2.80)**	0.281 (3.01)***	0.191 (2.29)**	0.218 (2.41)**	0.218 (2.77)**	0.277 (2.66)**
CPP	-0.859 (2.59)**	-0.659 (2.27)**	-0.749 (1.66)	-0.686 (1.97)*	-0.608 (1.60)	0.587 (0.92)	-0.010 (0.01)	-0.468 (1.03)	-0.334 (0.69)
$IDEP_{-1}$	-0.214 (4.15)***	2.243 (1.09)	1.390 (0.74)	-0.214 (4.08)***	-0.200 (3.64)***	-0.213 (2.02)*	-0.171 (1.86)*	-0.137 (1.61)	-0.190 (3.08)***
GOUVER	-0.009 (3.11)***	-0.006 (2.59)**	-0.006 (1.95)*	-0.010 (3.33)***	-0.009 (3.02)***	-0.006 (2.28)**	-0.006 (1.80)*	-0.008 (2.47)**	-0.008 (2.41)**
ÄDETCTP	0.891 (2.05)*								
ÄEXFU		0.172 (2.20)**	0.123 (2.60)**						
$ÄEXFU*CONEX_{-4}$			-0.006 (4.65)***						
$INTCONF_{-1}$				0.004 (0.25)					
$VARINF_{-1}$					0.115 (0.91)				
$VARDB_{-1}$						1.087 (1.80)*			
$VARTAX_{-3}$							0.223 (1.52)		

continued next page

Table 5 Continued

Variables##	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
$VARDCG_{-4}$								0.831	
								(2.62)**	
$VARTI_{-2}$									3.295
									(4.66)***
Constant	0.104	0.057	0.079	0.079	0.061	-0.124	-0.016	0.037	0.012
	(2.44)**	(1.05)	(0.99)	(1.56)	(1.07)	(1.30)	(0.15)	(0.55)	(0.18)
Observations	451	193	165	451	423	250	254	381	360
Countries	15	12	12	15	15	15	15	15	15
AR(1) test	0.002	0.029	0.034	0.004	0.004	0.017	0.009	0.005	0.006
AR(2) test	0.827	0.060	0.052	0.392	0.392	0.867	0.632	0.210	0.902
Hansen test	0.756	0.787	0.655	0.541	0.596	0.532	0.379	0.872	0.537

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.
Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the World Bank (1985) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A7.

Table 6: Determinants of capital flight in the FZ (Morgan Guaranty method#)

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FCRP_{-1}$		0.245 (2.91)**		0.163 (2.73)**	0.138 (2.04)*		0.224 (2.88)**	0.148 (2.35)**
DIFINF		0.163 (2.73)**		0.187 (3.46)***	0.183 (3.10)***		0.166 (2.20)**	0.191 (3.56)***
CPP		-0.735 (1.91)*		-1.175 (3.25)***	-1.198 (3.35)***		-0.641 (1.38)	-1.073 (2.65)**
$IDEP_{-1}$		-0.238 (4.38)***		-0.232 (3.56)***	-0.243 (3.67)***		-0.211 (3.27)***	-0.209 (3.22)***
GOUVER		-0.010 (3.15)***		-0.009 (2.64)**	-0.010 (2.98)***		-0.009 (2.53)**	-0.008 (2.20)**
ÄDETAJUP				0.933 (4.64)***	0.977 (4.85)***			0.912 (4.55)***
ÄDETAJUP*GOUVER					0.040 (2.32)**			
$CONEX_{-4}$							-0.001 (2.62)**	
ÄDETAJUP*$CONEX_{-4}$								-0.014 (2.76)**
$AIDP_{-1}$								
$AIDP_{-1}$*GOUVER								
$AIDP_{-1}$*$CONEX_{-4}$								

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FCRP_{-1}$								
DIFINF								
CPP								
$IDEP_{-1}$								
GOUVER								
ÄDETAJUP								
ÄDETAJUP*GOUVER								
$CONEX_{-4}$								
ÄDETAJUP*$CONEX_{-4}$								
$AIDP_{-1}$		0.273 (3.24)***		0.315 (3.08)***	0.246 (3.27)***			
$AIDP_{-1}$*GOUVER								
$AIDP_{-1}$*$CONEX_{-4}$								

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FCRP_{-1}$								
DIFINF								
CPP								
$IDEP_{-1}$								
GOUVER								
ÄDETAJUP								
ÄDETAJUP*GOUVER								
$CONEX_{-4}$								
ÄDETAJUP*$CONEX_{-4}$								
$AIDP_{-1}$		0.167 (2.46)**		0.195 (2.61)**	0.172 (2.07)*			
$AIDP_{-1}$*GOUVER				0.141 (2.72)**				
$AIDP_{-1}$*$CONEX_{-4}$								

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$FCRP_{-1}$								
DIFINF								
CPP								
$IDEP_{-1}$								
GOUVER								
ÄDETAJUP								
ÄDETAJUP*GOUVER								
$CONEX_{-4}$								
ÄDETAJUP*$CONEX_{-4}$								
$AIDP_{-1}$		0.246 (3.27)***		0.315 (3.08)***	0.246 (3.27)***			
$AIDP_{-1}$*GOUVER								
$AIDP_{-1}$*$CONEX_{-4}$					-0.006 (2.95)**			

continued next page

Table 6: Continued

Variables##	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant		0.087	0.121	0.127	0.071	0.103	-0.020	-0.099	-0.046
		(1.64)	(2.81)**	(2.95)**	(1.07)	(2.01)*	(0.34)	(1.49)	(0.76)
Observations		450	450	450	418	418	450	450	418
Countries		15	15	15	15	15	15	15	15
AR(1) test		0.004	0.007	0.006	0.009	0.009	0.005	0.004	0.008
AR(2) test		0.173	0.173	0.208	0.170	0.134	0.267	0.455	0.271
Hansen test		0.614	0.420	0.685	0.620	0.515	0.677	0.774	0.884

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; ***significant at 1%.

Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the Morgan Guaranty (1986) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A7.

Table 6 continued

Variables##	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
$FCRP_{-1}$	0.238 (2.85)**	0.311 (2.96)**	0.273 (3.43)***	0.264 (3.37)***	0.209 (2.52)**	0.208 (2.08)*	0.228 (3.13)***	0.259 (3.13)***	0.246 (2.29)**
DIFINF	0.153 (2.74)**	0.150 (2.13)*	0.125 (1.64)	0.238 (3.15)***	0.179 (1.94)*	0.196 (2.86)**	0.173 (2.81)**	0.166 (2.46)**	0.195 (2.86)**
CPP	-0.753 (1.99)*	-0.874 (1.76)	0.093 (0.24)	-0.589 (1.34)	-0.372 (0.74)	-1.437 (1.85)*	-0.802 (1.97)*	-0.585 (1.47)	-0.298 (0.60)
$IDEP_{-1}$	-0.250 (4.64)***	-0.027 (0.24)	-0.202 (3.08)***	-0.355 (5.70)***	-0.013 (0.06)	-0.203 (2.07)*	-0.239 (4.19)***	-0.190 (3.00)***	-0.216 (3.35)***
GOUVER	-0.010 (3.15)***	-0.011 (2.57)**	-0.006 (2.13)*	-0.009 (2.78)**	-0.013 (4.48)***	-0.014 (1.99)*	-0.009 (2.58)**	-0.009 (2.98)***	-0.006 (2.09)*
$DIFTCP_{-1}$	-0.192 (0.95)								
DBPP		-0.044 (0.16)							
$ÄTCER_{-5}$			53.836 (2.39)**						
$ÄEXP_{-1}$				0.269 (2.89)**					
$TECH_{-2}$					-0.146 (2.76)**				
$DIFIDB_{-1}$						-0.000 (1.64)			
DEP_{-3}							-0.023 (9.32)***		

continued next page

Table 6 Continued

Variables##	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
TSF_{-1}								0.289	
								(0.81)	
$TFMP_{-7}$									-1.588
									(2.68)**
Constant	0.092	0.102	-0.024	0.066	0.186	0.185	0.110	0.005	0.057
	(1.76)	(1.57)	(0.43)	(1.07)	(1.63)	(1.72)	(1.96)*	(0.06)	(0.77)
Observations	450	263	307	440	352	385	427	449	377
Countries	15	15	14	15	12	15	15	15	15
AR(1) test	0.004	0.018	0.004	0.006	0.021	0.003	0.006	0.006	0.007
AR(2) test	0.159	0.369	0.732	0.314	0.497	0.169	0.188	0.162	0.160
Hansen test	0.685	0.377	0.051	0.225	0.440	0.569	0.348	0.297	0.103

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the Morgan Guaranty (1986) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A 7.

Table 6 (end): Determinants of capital flight in the FZ (Morgan Guaranty method[#])

Variables[##]	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
$FCRP_{-1}$	0.255 (4.64)***	0.491 (4.70)***	0.441 (4.12)***	0.245 (2.87)**	0.258 (3.24)***	0.276 (2.44)**	0.343 (2.64)**	0.241 (2.53)**	0.164 (2.01)*
DIFINF	0.197 (3.18)***	0.099 (1.10)	0.149 (1.37)	0.163 (2.74)**	0.217 (3.01)***	0.146 (2.00)*	0.178 (2.28)**	0.188 (2.67)**	0.196 (2.60)**
CPP	-0.882 (2.45)**	-0.710 (2.30)**	-0.718 (1.60)	-0.732 (1.94)*	-0.634 (1.50)	0.586 (0.91)	0.084 (0.10)	-0.450 (1.01)	-0.387 (0.72)
$IDEP_{-1}$	-0.237 (4.51)***	1.471 (0.87)	0.645 (0.44)	-0.238 (4.44)***	-0.221 (3.82)***	-0.231 (2.19)**	-0.173 (1.93)*	-0.152 (1.78)*	-0.210 (3.14)***
GOUVER	-0.009 (2.93)**	-0.006 (2.47)**	-0.006 (1.87)*	-0.010 (3.13)***	-0.009 (2.73)**	-0.006 (2.30)**	-0.006 (1.62)	-0.008 (2.35)**	-0.008 (2.20)**
ÄDETCTP	0.860 (2.07)*								
ÄEXFU		0.156 (2.17)*	0.114 (2.46)**						
$ÄEXFU*CONEX_{-4}$			-0.008 (5.25)***						
$INTCONF_{-1}$				0.007 (0.36)					
$VARINF_{-1}$					0.131 (1.14)				
$VARDB_{-1}$						0.930 (1.56)			
$VARTAX_{-3}$							0.195 (1.44)		

continued next page

Table 6 Continued

Variables##	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
$VARDCG_{-4}$								0.845	
								(2.58)**	
$VARTI_{-2}$									2.422
									(3.37)***
Constant	0.108	0.073	0.082	0.085	0.064	-0.120	-0.028	0.033	0.024
	(2.32)**	(1.45)	(1.03)	(1.58)	(1.02)	(1.24)	(0.26)	(0.50)	(0.32)
Observations	450	193	165	450	423	250	254	381	360
Countries	15	12	12	15	15	15	15	15	15
AR(1) test	0.002	0.026	0.030	0.004	0.004	0.019	0.010	0.005	0.006
AR(2) test	0.922	0.275	0.224	0.171	0.222	0.786	0.568	0.172	0.796
Hansen test	0.822	0.707	0.607	0.607	0.653	0.583	0.366	0.849	0.540

Robust t statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.
Note: The regressions are run with the Blundell and Bond (1998) system GMM method.

Capital flight is measured using the Morgan Guaranty (1986) version of the residual method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001).

All variable descriptions and sources are listed in Table A 7.

Policy implications

The econometric analysis revealed that in a context of poor governance and bad institutional quality, external debt, aid and natural resources revenues are used in part to finance capital flight. Indeed, according to Boyce and Ndikumana (2001), corrupt rulers take advantage of their favourable position to amass personal fortunes held abroad. Therefore, improvement in governance and strengthening of institutions are absolutely necessary in repatriating capital flight. For that, actions to be undertaken should call for more responsibility for the governments of the FZ countries in managing external debt, aid and natural resources revenues. These governments should put into place transparency mechanisms by regularly providing information to the populations with respect to the management and use of those resources.

Actions should also call for more responsibility for the western creditors. Indeed, these creditors can play an important role in checking this type of capital flight by obliging the governments of FZ countries to establish transparency mechanisms. Since some creditors provide financial resources in the form of external debt or aid on the basis of political considerations (Boyce and Ndikumana, 2001), the current governments in the FZ countries should accept to pay only resources that were really used by the foregoing governments in the FZ countries to finance domestic investment or public consumption, and should refuse to reimburse resources for which the use is not justified.[18] This strategy can help induce creditors to define more strict criteria with respect to the use of the resources they give as debt or aid.

Capital flight repatriation also implies responsibilities for foreign banks. These banks should become aware that the resources (debt, aid and natural resources) they receive as capital flight are to be used to finance social sectors: Education, health, infrastructures, energy (water and electricity), etc. Foreign banks, therefore, have a moral responsibility to collaborate in the repatriation of such resources.

The econometric investigation revealed that capital flight arises in the presence of macroeconomic instability (increase in inflation; exchange rate overvaluation; decline in terms of trade; and uncertainty in government consumption, real interest rates and budget deficits) and in the context of less developed financial systems (fall in deposit and in credit to private sector). Capital flight repatriation therefore necessitates minimizing the macroeconomic instability. In that sense, low inflation, minimized change in exchange rate, high terms of trade, minimized uncertainty of public policies, can help to decrease the risks of losses in residents' assets, reducing capital flight. Given that the FZ benefits from exchange rate stability, this zone is less sensitive to external shocks. Therefore, the residents' wealth is less exposed to risks of losses, another argument for capital flight repatriation. However, capital flight repatriation requires promoting domestic deposit rates in order to stimulate deposits and increase credits to the private sector.

Furthermore, promoting foreign direct investment and remittances is important in reducing the magnitude of capital flight.

6. Conclusion

This paper examined the determinants of capital flight from the FZ. The magnitude of capital flight was estimated using two versions of the residual method (World Bank, 1985; Morgan Guaranty, 1986), adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001). For the 15 FZ countries, during the period 1970 to 2005, capital flight was found to be massive at about US$53.1 billion (World Bank method) or US$49.7 billion (Morgan Guaranty method). Capital flight exceeded the levels of GDP and external debt for most of the countries in the sample, suggesting the importance of investigating the determinants of this phenomenon.

Using the generalized method of moments, the study revealed that in a context of poor governance and bad institutional quality, external debt, aid and natural resources revenues are used in part to finance capital flight. Capital flight repatriation thus suggests improvement in governance and strengthening of institutions, more responsibility for the governments of the FZ countries in managing those resources, more responsibility for the western creditors by obliging the governments of the FZ countries to establish transparency mechanisms, and moral responsibility of the foreign banks in collaborating in the repatriation of those resources that are to be used to finance social sectors.

The results also indicated that capital flight arises in the presence of macroeconomic instability and in the context of less developed financial systems. Therefore, capital flight repatriation necessitates minimizing the macroeconomic instability and promoting the financial system.

In addition, the paper explored the effects of other factors. Past capital flight was shown to affect current capital flight positively and significantly, suggesting a permanent influence tendency for capital flight. However, rate of return differentials and armed conflict have insignificant effects on capital flight, while foreign direct investment and remittances negatively and significantly influenced capital flight. This implies that promoting foreign direct investment and remittances is important in reducing the magnitude of capital flight.

Notes

1. To my knowledge, except for Cerra et al. (2008), authors have not considered all the 15 FZ countries in their sample.

2. Davies (2008) finds that the influence of external aid on capital flight is not significant, with the following econometric estimation techniques: Ordinary least squares, within-group, two-stage least squares, and Arellano-Bond Generalized Method of Moments (GMM). However, with generalized least squares technique, Davies (2008) shows that this influence is negative and significant.

3. For discussions of these financial intermediation measures, see Lynch (1996), Levine (1997), and Beck et al. (2000).

4. To estimate capital flight from Comoros, I consider the period 1980–2005 using the World Bank method. However, with the Morgan Guaranty method, the period considered is 1982–2005 because assets held overseas by Comorian domestic banks are available only from 1982 to 2005.

5. But data with which capital flight from this country are computed are available only in the period 1987 to 2005.

6. In addition to these adjustments, Boyce and Ndikumana (2001) had taken into account another adjustment: for imputed interest earnings. These authors assert that adjustment for inflation is useful in examining the causes and consequences of capital flight from sub-Saharan Africa and that adjustment for imputed interest earnings permits more appropriate comparisons of the magnitude of capital flight to other aggregates, such as the stock of debt. Since this study aims at analysing the determinants of capital flight, adjustment for imputed interest earnings is not appropriate. Therefore, I take into account only adjustments for exchange rate fluctuations, trade misinvoicing and inflation.

7. Euro (from 2001); Deutschmark and French Franc (up to 2000).

8. This ratio is measured as total capital flight in the period 1970–2005 as a percentage of the 2005 GDP.

9. This ratio is measured as total capital flight in the period 1970–2005 as a percentage of the 2005 external debt.

10. Since the length of the time period is not identical for these countries, annual average of capital flight appears to be the best comparison indicator of capital flight from these countries.

11. Inflation rate is measured as the annual variation in GDP deflator.

12. As a proxy variable for the exchange rate overvaluation, I have considered also the parallel market premium, measured as the difference between the market exchange rate and the official exchange rate (Nyoni, 2000; Olopoenia, 2000; Lawanson, 2007) and the degree of appreciation or depreciation of the currency, measured as the annual change in the market exchange rate (Ajayi, 1992). However, the effect of these variables on capital flight was insignificant. Moreover, these variables did not present the expected signs.

13. I also tested the influence of two other types of natural resources exports on capital flight: Agricultural raw materials, and ores and metals. But the results, not reported in the paper, were insignificant.

14. I also considered the impact of total budget deficit, but this variable did not appear to be significant.

15. I also considered domestic deposit rate as an explanatory variable of capital flight from the countries in the FZ. However, the findings indicated an insignificant influence of this variable.

16. I explored the effect of another financial development indicator, namely the credit provided by the banking system. However, this variable did not significantly influence capital flight.

17. Interacting fuel exports and governance, I found an insignificant coefficient, suggesting that in FZ, the influence of natural resources revenues on capital flight does not occur through the governance channel.

18. This is what Ndikumana and Boyce (2003) call selective disengagement strategy.

References

Acemoglu, D. and Y. Thaicharoen. 2003. "Institutional causes, macroeconomic symptoms: volatility, crises and growth". *Journal of Monetary Economics*, 50: 49–123.

Ajayi, I.S. 1992. "An economic analysis of capital flight from Nigeria". World Bank Working Paper 993. The World Bank, Washington, D.C.

Ajayi, I.S. 1997. "An analysis of external debt and capital flight in the severely indebted low income countries in sub-Saharan Africa". IMF WP/97/68. International Monetary Fund, Washington, D.C.

Ajayi, I.S. 2007. "Dynamics of capital flight: Causes and determinants". Paper prepared for the Senior Policy Seminar on Capital Flight from sub-Saharan Africa: Implications for Macroeconomic Management and Growth, 30 October–2 November 2007, Pretoria, South Africa.

Alam, I. and R. Quazi. 2003. "Determinants of capital flight: An econometric case study of Bangladesh". *International Review of Applied Economics*, 17(1): 85–103.

Arellano, M. and S. Bond. 1991. "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations". *Review of Economic Studies*, 58: 277–97.

Awung, W.J. 1996. "An economic analysis of capital flight in Cameroon". African Economic Research Consortium, Nairobi.

Bank of England. 1989. "Capital Flight". *Bank of England Quarterly Bulletin*, 29: 364–67.

Bank of France. 1987. "L'évasion des capitaux dans les pays en développement". *Banque de France*, bulletin de conjoncture, May.

Bauer, P.T. 1981. *Equality, the Third World and Economic Delusion*. London: Weidenfeld and Nicolson.

Beck, T., R. Levine and N. Loayza. 2000. "Finance and the sources of growth". *Journal of Financial Economics*, 58: 261–300.

Beja, E.L. Jr. 2006. "Revisiting the revolving door: Capital flight from Southeast Asia". DESA Working Paper No. 16.

Blundell, R. and S. Bond. 1998. "Initial conditions and moment restrictions in dynamic panel data models". *Journal of Econometrics*, 87(1): 115–43.

Boyce, J.K. 1992. "The revolving door? External debt and capital flight: A Philippine case study". *World Development*, 20(3): 335–49.

Boyce, J.K. 1993. "The Philippines: The Political Economy of Growth and Impoverishment in the Marcos Era". London: Macmillan Press.

Boyce, J.K. and L. Ndikumana. 2001. "Is Africa a net creditor? New estimates of capital flight from severely indebted sub-Saharan African countries, 1970–1996". *Journal of Development Studies*, 38(2): 27–56.

Cardoso, E. and R. Dornbush. 1989. "Foreign private capital flows". In H. Chenery and T.N. Srinavasan, eds., *Handbook of Development Economics*. Elsevier Science Publishers BV.

Cerra, V., M. Rishi and S.C. Saxena. 2008. "Robbing the riches: Capital flight, institutions, and debt". *Journal of Development Studies*, 44(8): 1190–213.

Chami, R., C. Fullenkamp and S. Jahjah. 2003. "Are immigrant remittance flows a source of capital for development?" International Monetary Fund Working Paper 03/189. International Monetary Fund, Washington, D.C.

Chipalkatti, N., and M. Rishi. 2001. "External debt and capital flight in the Indian economy". *Oxford Development Studies*, 29(1): 31–44.

Claessens, S. and D. Naudé. 1993. "Recent estimates of capital flight". Policy Research Working Paper, WPS 1186. The World Bank, Washington, D.C.

Collier, P., A. Hoeffler and C. Pattillo. 2004a. "Africa's Exodus: Capital Flight and the Brain Drain as Portfolio Decisions", *Journal of African Economies*, 13(1): ii15-ii54(1).

Collier, P., A. Hoeffler and C. Pattillo. 2004b. "Aid and Capital Flight". Mimeo, Centre for the Study of African Economies, Oxford University.

Collier, P., A. Hoeffler and C. Pattillo. 2001. "Flight capital as a portfolio choice". *World Bank Economic Review*, 15(1): 55–80.

Cuddington, J. 1986. *Capital Flight: Estimates, Issues, and Explanations*. Princeton Studies in International Finance No. 58. Princeton University, Department of Economics. Princeton, New Jersey.

Cuddington, J. 1987. "Macroeconomic determinants of capital flight: An econometric investigation". In D. Lessard and J. Cuddington, eds., *Capital Flight and Third World Debt*. Washington, D.C.: Institute for International Economics.

Davies, V.A.B. 2008. "Postwar capital flight and inflation". *Journal of Peace Research*, 45(4): 519–37.

Demir, F. 2004. "A failure story: Politics and financial liberalization in Turkey, revisiting the revolving door hypothesis". *World Development*, 32(5): 851–69.

Deppler, M. and M. Williamson. 1987. "Capital flight: Concepts, measurement and issues". Staff Papers for the World Economic Outlook. International Monetary Fund, Washington, D.C.

Dollar, D. 1992. "Outward-oriented developing economies really do grow more rapidly: Evidence from 95 LDCs, 1976–1985". *Economic Development and Cultural Change*, 40(3): 523–44.

Dooley, M.P. 1986. "Country-specific risk premiums, capital flight and net investment income payments in selected developing countries". International Monetary Fund, Washington, D.C. Unpublished manuscript.

Dooley, M.P. 1988. "Capital flight: A response to differences in risk". *International Monetary Fund Staff Paper*, 35: 422–36.

Dornbush, R. 1986. *Dollars, Debts and Deficits*. Cambridge, Massachusetts: MIT Press.

Duwendag, D. 1989. "Capital flight from developing countries". *Development Co-operation*, 3: 23-25.

Easterly, W. and H. Yu. 2000. *Global Development Network Growth Database*. Washington, D.C.: The World Bank.

Eaton, J. 1987. "Public debt guarantees and private capital flight". *The World Bank Economic Review*, 1(3): 377–95.

Erbe, S. 1985. "The flight of capital from developing countries". *Intereconomics,* 20(4) (November/ December): 268–75.

Fedderke, J.W. and W. Liu. 2002. "Modelling the determinants of capital flows and capital flight: With an application to South African data from 1960–95". *Economic Modelling*, 19: 419–44.

Fielding, D. 2004. "How does violent conflict affect investment location decisions? Evidence from Israel during the intifada". *Journal of Peace Research*, (41)4: 465–84.

Gibson, H.D. and E. Tsakalotos. 1993. "Testing a flow model of capital flight in five European countries". *The Manchester School*, 61(2): 144–66.

Gordon, D.B. and R. Levine. 1989. "The 'problem' of capital flight: A cautionary note". *The World Economy*, 12(2): 237–52.

Gupta, P. 2005. "Macroeconomic determinants of remittances: Evidence from India". IMF Working Paper 05/224. International Monetary Fund, Washington, D.C.

Gupta, S., C. Pattillo and S. Wagh. 2007. "Impact of remittances on poverty and financial development in sub-Saharan Africa". International Monetary Fund Working Paper 07/38. International Monetary Fund, Washington, D.C.

Harrigan, J., G. Mavrotas and Z. Yusop. 2002. "On the determinants of capital flight: A new approach". *Journal of the Asia Pacific Economy*, 7(2): 203–41.

Henry, L. 1996. "Capital flight from beautiful places: The case of three Caribbean countries". *International Review of Applied Economics*, 10(2): 263–72.

Hermes, N. and R. Lensink. 1992. ''The magnitude and determinants of capital flight: The case for six sub-Saharan African countries''. *De Economist*, 140(4): 515–30.

Hermes, N. and R. Lensink. 2001. ''Capital flight and the uncertainty of government policies''. *Economics Letters*, 71(3): 377–81.

Hermes, N., R. Lensink and V. Murinde. 1999. "The magnitude and determinants of capital flight in Eastern Europe". In A.W. Mullineux and C.J. Green, eds., *Economic Performance and Financial Sector Reform in Central and Eastern Europe*. Cheltenham: Edward Elgar.

Hermes, N., R. Lensink and V. Murinde. 2002a. "Flight capital and its reversal for development financing". WIDER Discussion Paper No. 2002/99. World Institute for Development Economics Research of the United Nations University, Helsinki, Finland.

Hermes, N., R. Lensink and V. Murinde. 2002b. "Capital flight, policy uncertainty, and the instability of the international financial system". In A. Mullineux and V. Murinde, eds., *Handbook of International Banking*. Cheltenham: Edward Elgar (forthcoming)

IMF. 2004a. *Balance of Payments Statistics 2004*. CD-ROM edition. Washington, D.C.: International Monetary Fund.

IMF. 2004b. *Direction of Trade Statistics 2004*. CD-ROM edition. Washington, D.C.: International Monetary Fund.

IMF. 2006. *World Economic Outlook 2006*.CD-ROM edition. Washington, D.C.: International Monetary Fund.

IMF. 2007. *International Financial Statistics 2007*.CD-ROM edition.

IMF. *Selected Issues and Statistical Appendix* (in www.imf.org).

Jadhav, N. 2003. "Maximizing developmental benefits of migrant remittances: The Indian experience". Paper presented at the joint conference of DFID-World Bank, London, 2003.

Kant, C. 1996. "Foreign direct investment and capital flight". Princeton Studies in International Finance, 80. Princeton University, Princeton, New Jersey.

Ketkar, S.L. and K.W. Ketkar. 1989. "Determinants of capital flight from Argentina, Brazil, and Mexico". *Contemporary Policy Issues*, 7(3): 11–29.

Kindleberger, C.P. 1987. "A historical perspective". In D.R. Lessard and J. Williamson, eds., *Capital Flight and Third World Debt*. Washington DC: Institute for International Economics.

Lawanson, A.O. 2007. "An econometric analysis of capital flight from Nigeria: A portfolio approach". AERC Research Paper 166. African Economic Research Consortium, Nairobi.

Le, Q.V. and M. Rishi. 2006. "Corruption and capital flight: An empirical assessment". *International Economic Journal*, 20(4): 523–40.

Le, Q.V. and P.J. Zak. 2006. "Political risk and capital flight". *Journal of International Money and Finance*, (25)2: 308–29.

Leite, C. and J. Weidmann. 1999. "Does mother nature corrupt? Natural Resources, Corruption and Economic Growth". IMF Working Paper 99/85. International Monetary Fund, Washington, D.C.

Lensink, R., N. Hermes and V. Murinde. 1998. "The effect of financial liberalization on capital flight in African economies". *World Development*, 26(7): 1349–68.

Lensink, R., N. Hermes and V. Murinde. 2000. "Capital flight and political risk". *Journal of International Money and Finance*, 19: 73–92.

Lessard, D.R. and J. Williamson, eds. 1987. *Capital Flight and Third World Debt*. Washington, D.C.: Institute for International Economics.

Levine, R. 1997. "Financial development and economic growth: Views and agenda". *Journal of Economic Literature*, 35, 688–726.

Ljungwall, C. and Z. Wang. 2008. "Why is capital flowing out of China?" *China Economic Review*, 19(3): 359–72.

Loungani, P. and P. Mauro. 2000. "Capital flight from Russia". IMF Policy Discussion Paper 00/6. International Monetary Fund, Washington, D.C.

Lucas, R.E.B. and O. Stark. 1985. "Motivations to remit: Evidence from Botswana". *Journal of Political Economy*, 93(October): 901–18.

Lynch, D. 1996. "Measuring financial sector development: A study of selected Asia-Pacific countries". *Developing Economies*, 32(1): 3–33.

Mikkelsen, J.G. 1991. "An econometric investigation of capital flight". *Applied Economics*, 23: 73–85.

Morgan Guaranty Trust Company. 1986. "LDC capital flight". *World Financial Markets*, 2: 13–6.

Morgan Guaranty Trust Company. 1988. "LDC debt reduction: A critical appraisal". *World Financial Markets*, 7: 1–12.

Murinde, V., N. Hermes and R. Lensink. 1996. "Comparative aspects of the magnitude and determinants of capital flight in six sub-Saharan African countries". *Saving and Development*, 20(1): 61–78.

Muscatelli, A. and A.H. Hallett. 1992. "How successfully do we measure capital flight? Evidence from five developing countries". *Journal of Development Studies*, 28(3): 538–56.

Ndikumana, L. and J.K. Boyce. 2003. "Public debts and private assets: Explaining capital flight from sub-Saharan African countries". *World Development* 31(1): 107–30.

Ndikumana, L. and J.K. Boyce. 2007. "New estimates of capital flight from sub-Saharan African countries: Linkages with external borrowing and policy options". Paper prepared for the Senior Policy Seminar on Capital Flight from sub-Saharan Africa: Implications for Macroeconomic Management and Growth, 30 October—2 November 2007, Pretoria, South Africa.

Ng'eno, N.K. 2000. "Capital flight in Kenya". In I.S. Ajayi, and M. Khan, eds. *External Debt and Capital Flight in Sub-Saharan Africa*. Washington, D.C.: The IMF Institute.

Nyatepe-Coo, A.A. 1994. "Capital flight in low-income sub-Saharan Africa: The effects of political climate and macroeconomic policies". *Scandinavian Journal of Development Alternatives*, 59–68.

Nyoni, T. 2000. "Capital flight from Tanzania". In I.S. Ajayi, and M. Khan, eds., *External Debt and Capital Flight in Sub-Saharan Africa*. Washington, D.C.: The IMF Institute.

Ojo, O.O. 1992. "An empirical investigation of capital flight in selected African countries". African Development Bank Economic Research Paper No. 17. African Development Bank, Tunis, Tunisia.

Olopoenia, R. 2000. "Capital flight from Uganda, 1971–94". In I.S. Ajayi, and M. Khan, eds., *External Debt and Capital Flight in Sub-Saharan Africa*. Washington, D.C.: The IMF Institute.

Pastor, M. 1990. "Capital flight from Latin America". *World Development*, 18(1): 1–18.

Polity IV Project database.

Quazi, R. 2004. "Foreign aid and capital flight". *Journal of the Asia Pacific Economy*, 9(3): 370–93(24).

Ratha, D. 2003. "Workers' remittances: An important and stable source of external development finance". In World Bank, *Global Development Finance*, *2003—Striving for Stability in Development Finance*. Washington, D.C.: The World Bank.

Rodrik, D. and A. Velasco. 1999. "Short-term capital flows". NBER Working Paper No. 7364. National Bureau of Economic Research, Cambridge, Massachusetts.

Rojas-Suarez, L. 1990. "Risk and capital flight in developing countries". IMF Working Paper 90/64. International Monetary Fund, Washington, D.C.

Salisu, M. 2005. "The role of capital flight and remittances in current account sustainability in sub-Saharan Africa". *African Development Review*, 17(3): 382–404.

Schineller, L. 1997a. "An econometric model of capital flight from developing countries". Federal Reserve Board, International Finance Discussion Paper No. 579. Federal Reserve Board, Washington, D.C.

Schineller, L. 1997b. "A nonlinear econometric analysis of capital flight". Federal Reserve Board, International Finance Discussion Paper No. 594. Federal Reserve Board, Washington, D.C.

Sheets, N. 1996. "Capital flight from the countries in transition: Some empirical evidence". *Journal of Policy Reform*, 1: 259–77.

Smit, B.W. and B.A. Mocke. 1991. "Capital flight from South Africa: Magnitude and causes". *South African Journal of Economics*, 59(2): 101–17.

Spatafora, N. 2005. "Two Current Issues Facing Developing Countries". In IMF, *World Economic Outlook, 2005*. Washington, D.C.: International Monetary Fund.

Stevens, P. 2003. "Resource impact: Curse or blessing? A literature survey". *Journal of Energy Literature,* IX: 3–41.

Uppsala Conflict Data Program (UCDP)/Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO) Armed Conflict Dataset, version 4-2008.

Vos, R. 1992. "Private foreign asset accumulation, not just capital flight: Evidence from the Philippines". *Journal of Development Studies*, 28(3), 500–37.

Walter, I. 1987. "The mechanisms of capital flight". In D.R. Lessard and J. Williamson, eds., *Capital Flight and Third World Debt*. Washington DC: Institute for International Economics.

World Bank. 1985. *World Development Report 1985*. Washington DC: World Bank.

World Bank. 2006a. *World Development Indicators 2006*. CD-ROM edition. Washington, D.C.: The World Bank.

World Bank. 2006b. *Africa Database 2006*, CD-ROM edition. Washington, D.C.: The World Bank.

World Bank. 2007a. *Global Development Finance 2007*. CD-ROM edition. Washington, D.C.: The World Bank.

World Bank. 2007b. *Africa Development Indicators 2007*. CD-ROM edition. Washington, D.C.: The World Bank.

World Bank. 2007c. *World Development Indicators 2007*. CD-ROM edition. Washington, D.C.: The World Bank.

Wurthmann, G. 2006. "Ways of using the African oil boom for sustainable development". African Development Bank, Economic Research Working Paper No 84. African Development Bank, Tunis, Tunisia.

Yehoue, E.B. 2007. "The CFA arrangements — More than just an aid substitute?" IMF Working Paper 07/19. International Monetary Fund, Washington, D.C.

Appendixes

Appendix 1

Table A1: Macroeconomic performances in the FZ and in non-FZ (in %)

Indicators	Franc Zone	Non-Franc Zone	Period
Inflation (deflator of GDP)	8.06	76.02	1960–2004
Inflation variability (deflator of GDP)	12.03	230.44	1960–2004
Inflation (consumer price index)	2.77	3.68	1970–2003
Fiscal deficit	-3.89	-4.70	1965–2004
Growth rate of real GDP	3.09	2.85	1970–2003

Sources:
- World Bank (2006a).
- World Bank (2006b).
- IMF (2006).

Note:
- Inflation and inflation variability (deflator of GDP) are drawn from Yehoue (2007).
- Yehoue (2007) computes inflation variability by the standard deviation of the annual inflation rate based on the deflator of GDP.
- Yehoue (2007) calculates fiscal deficit by 5-year average percentage of GDP.
- I have computed annual average of growth rate of real GDP and annual change in consumer price index.

Appendix 2

Table A2: Empirical studies on the determinants of capital flight

Authors	Countries	Period	Methodology	Results
A. Studies on sub-Saharan Africa				
Ajayi (1992)	Nigeria	1972–1989	Time series	Level of foreign reserves (0), exchange rate (+), GNP growth rate (0), real interest rate differential (+), variation in inflation (+), financial recession (0), fiscal deficit (-)
Hermes and Lensink (1992)	6 Sub-Saharan African countries	1976–1987	Pooled data	Debt flows (+), growth (0), inflation (0), budget surplus (0), ratio tax to GDP (0), interest rate differential (0), overvaluation exchange rate (+)
Murinde et al. (1996)	6 Sub-Saharan African countries	1976–1991	Time series	Debt flows (+/0) ; aid (+/-/0), growth (+/-/0), inflation (+/0), interest rate differential (0), overvaluation exchange rate (+/0)
Lensink et al. (1998)	9 Sub-Saharan African countries	1970–1991	Pooled data	Debt flows (+), inflation (+), lagged capital stock (-), deposit rate (-), expected change in exchange rate (+), lagged demand deposits (-)
Olopoenia (2000)	Uganda	1971–1994	Ordinary Less Squares	Growth (0), inflation (+), parallel market premium (0)
Nyoni (2000)	Tanzania	1973–1992	Regressions in first differences	Debt flows (0), past capital flight (-), growth rate differential (+), inflation (0), parallel market premium (0), interest rate differential (0), political shock dummy (0)

continued next page

Table A2: Continued

Authors	Countries	Period	Methodology	Results
A. Studies on sub-Saharan Africa				
Ng'eno (2000)	Kenya	1981–1995	Quarterly data	Real GDP (+), interest rate differential (-), exchange rate (+)
Ndikumana and Boyce (2003)	30 Sub-Saharan African countries	1970–1996	Ordinary Less Squares	First lag of capital flight (+), second lag of capital flight (+), ratio of debt to GDP (+), debt stock (+), inflation (0), budget deficit (-), difference between the domestic deposit rate and the US Treasury bill rate with an adjustment for depreciation of the local currency (0), voice and accountability (-), political freedom (-), corruption (+), government effectiveness (0), risk contract repudiation (0)
Lawanson (2007)	Nigeria	1970–2001	Time series	GDP growth rate (-), real interest rate differential (+), parallel market premium (+), ratio of budget deficit to GDP (+), variation in inflation rate (+), ratio of external public debt to GDP (+), ratio of domestic debt to GDP (-), political stability (0)
Ndikumana and Boyce (2007)	40 Sub-Saharan African countries	1970–2004	Time series	First lag of capital flight (+), second lag of capital flight (+), change in debt (+), debt stock (+), lagged growth rate (-), inflation differential (0/+), financial development (0), fuel export (-/0), interaction between fuel export and governance (0)
Salisu (2005)	46 Sub-Saharan African countries	1991-2004 1991–2004	Time Series Time series	Bi-directional relation between debt and capital flight
B. Studies on other countries				
Cuddington (1986)	7 Latin American countries +Korea	1974–1984	Time series	Real exchange rate (+/-), difference between the domestic deposit rate and the foreign bill rate with an adjustment for depreciation of the local currency (0), real interest rate (0), foreign real interest rate (0), inflation (+)

continued next page

Table A.2: Continued

Authors	Countries	Period	Methodology	Results
B. Studies on other countries				
Cuddington (1987)	4 Latin American countries	1974–1984	Time series	Real exchange rate (+), real interest rate (0), inflation (0)
Dooley (1988)	5 Latin American countries + The Philippines	1976–1983	Pooled data	Inflation (+), financial repression (+), risk premium on external debt (-)
Pastor (1990)	8 Latin American countries + The Philippines	1973–1986	Pooled data	Debt flows (+), growth rate differential (-), inflation (+/0), change in ratio of tax to GDP (0), interest rate differential (+), exchange rate overvaluation (+)
Mikkelsen (1991)	22 developing countries	1978-1985	Pooled data + Time series for Mexico	Debt flows (+), past capital flight (+), growth (-), expected relative returns on foreign vs. domestic assets (+)
Muscatelli and Hallett (1992)	4 Latin American countries + The Philippines	1976–1988	Time series	Inflation (+/0), budget surplus (-/0), interest rate (-/0), exchange rate (+/0), returns on foreign assets (+/0)
Boyce (1992, 1993)	The Philippines	1962–1986	Ordinary Less Squares	Debt flows (+), past capital flight (0), growth (0), budget surplus (-), interest rate differential (+)
Vos (1992)	The Philippines	1972–1988	Ordinary Less Squares	Debt flows (+), debt stock (0), past capital flight (+), inflation (0), ratio of tax to GDP (0), interest rate differential (+), exchange rate undervaluation (-)
Henry (1996)	Barbados, Jamaica and Trinidad and Tobago	1971–1987	Time series	Debt flows (+), growth (-/0), inflation (-/0), budget surplus (-/0), interest rate differential (+), exchange rate (-/0)
Hermes and Lensink (2001)	84 developing countries	1971–1991	Cross-section analysis	Bank lending (+/0), foreign aid (+), political uncertainty : government consumption (+), tax (+), budget deficit (+), interest rate (+), inflation (0), political instability (+)
Lensink et al. (2000)	84 developing countries	1971–1991	Cross-section analysis	Bank lending (+), aid (+), foreign direct investment (0), inflation (0), political instability (+), democracy and political freedom (-), war (+)

continued next page

Table A2: Continued

Authors	Countries	Period	Methodology	Results
B. Studies on other countries				
Collier et al. (2001)	50 developing countries	1980–1990	Cross-section	Debt stock (squared) (+), capital stock (+/0), dollar distortion analysis index (squared) (+), investor risk (0), ratio of M2 to GDP (0), governance indicators (0)
Ketkar and Ketkar (1989)	Argentina, Brazil and Mexico	1977–1986	Ordinary Less Squares	Real interest rate (0), foreign real interest rate (0), inflation (+), real exchange rate (+), regime change (+), spread between foreign and domestic interest rate (0)
Hermes et al. (1999)	Hungary, Poland and Romania	1982–1995	Ordinary Less Squares	Ratio of debt to GDP (+), real exchange rate (0), budget deficit (0), difference between the domestic deposit rate and the foreign bill rate with an adjustment for depreciation of the local currency (0), ratio of aid to GDP (0)
Demir (2004)	Turkey	1974–2000	Time series	Bi-directional relation between debt and capital flight
Collier et al. (2004b)	48 non-OECD countries	1970–1998	Nonlinear estimation	Aid reduces significantly capital flight
Cerra et al. (2008)	134 developing countries	1970-2001	Pooled data and cross-section analysis	Unsound macroeconomic policies (+), institutional quality (-), debt (+), aid (-), foreign direct investment (-), short-term debt (+)
Beja Jr (2006)	4 South-East Asian countries: Indonesia, Malaysia, Philippines, Thailand	1970–2002	Time series	Capital flight is influenced by the change in debt, the growth rate, the interest rate differential, dummy variables (for political and governance indicators)
Davies (2008)	77 developing countries	1971–2000	Ordinary Less Squares, Within-, group Generalized	Post-war inflation (+) ; war (+); per capita income, aid and GDP growth show no consistent relationship with capital flight

continued next page

Table A2: Continued

Authors	Countries	Period	Methodology	Results
B. Studies on other countries				
			less squares, Two-stage least squares, Arellano-Bond GMM	
Le and Zak (2006)	45 developing countries	1976–1991	Time series	Economic risk (+); political instability (+); and policy variability (+)
Alam and Quazi (2003)	Bangladesh		Bounds testing and the Auto-regressive Distributed Lag procedures	Political instability (+); corporate income taxes (+); real interest rate differentials between the capital-haven countries and Bangladesh (+); GDP growth rates (-)
Ljungwall and Wang (2008)	China	1993.1–2003.4	Cointe-gration and innovation accounting methodology	Changes in external debts (+) ; real GDP growth (-); rising foreign investor confidence (-)
Quazi (2004)	Bangladesh		Engle–Granger cointe-gration procedure	Aid (+); real GDP growth (-), corporate taxes (+), financial repression (+); political instability (+)

Note: In this table:
- The sign + in parentheses denotes a statistically significant positive effect.
- The sign - in parentheses denotes a statistically significant negative effect.

The symbol 0 in parentheses denotes no statistically significant effect

Appendix 3

Table A.3: Selected studies on capital flight measure in the FZ countries (million 2000 $US)

	Ojo (1992)		Ajayi (1997)					Hermes et al. (2002a)				Ndikumana and Boyce (2007)	
FZ Countries	World Bank	Period	World Bank	Morgan Guaranty	Adjusted World Bank#	Adjusted Morgan Guaranty#	Period	World Bank	Period	World Bank	Period	Adjusted World Bank##	Period
Benin	NA		NA	NA	NA	NA		NA		NA		-3457.4	1974–2004
Burkina Faso	NA		NA	NA	NA	NA		NA		NA		1265.5	1970–2003
Cameroon	NA		NA	NA	NA	NA		480	1983–1989	460	1990–1998	13099.4	1970–2004
Central African Republic	NA		91.8	146.97	692.33	747.5	1980–1991	NA		NA		250.2	1970–2004
Chad	NA		NA	NA	NA	NA		NA		NA		931.1	1977–2004
Comoros	NA		NA	NA	NA	NA		NA		NA		-176.4	1980–2004
Congo	NA		NA	NA	NA	NA		NA		NA		12195.5	1971–2004
Côte d'Ivoire	10900	1975-1991	3397.1	2914.5	9438.71	8956.11	1980–1991	296	1983–1989	-346	1990–1998	33029.6	1970–2004
Gabon	NA		NA	NA	NA	NA		NA		NA		7834.6	1978–2004
Guinea-Bissau	NA		269.56	270.28	229.16	229.88	1980–1991	NA		NA		NA	
Mali	NA		644.1	1229.5	-302.56	273.84	1980–1991	NA		NA		-1642.5	1970–2004
Niger	NA		274.8	377.5	1815.67	1918.37	1980–1991	NA		NA		-5970	1970–2004
Senegal	NA		NA	NA	NA	NA		NA		NA		-8962.8	1974–2004
Togo	NA		NA	NA	NA	NA		NA		NA		-3210.3	1974–2004

adjusted for trade misinvoicing.
adjusted for exchange rate fluctuations, trade misinvoicing and inflation.

Appendix 4

Table A.4: Annual real capital flight from the FZ countries (million 2000 $US)

a. World Bank method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001)

	Benin	Burkina Faso	Cameroon	Central African Republic	Chad	Comoros	Congo	Côte d'Ivoire	Equatorial Guinea	Gabon	Guinea-Bissau	Mali	Niger	Senegal	Togo
1970	5.5	44.8	-105.1	-9.2	67.4	NA	NA	318.0	NA	192.3	NA	NA	43.3	-57.8	41.4
1971	-5.2	50.7	-30.3	14.5	164.8	NA	-44.5	380.9	NA	352.6	NA	NA	75.3	-36.1	27.0
1972	-19.0	17.7	-304.3	27.7	169.8	NA	-22.6	443.6	NA	587.7	NA	NA	89.8	-72.5	5.7
1973	5.8	4.9	-527.9	98.6	170.7	NA	124.9	528.9	NA	385.4	NA	NA	111.0	-155.1	81.8
1974	76.4	137.7	-22.2	-18.2	73.1	NA	-242.1	285.5	NA	865.7	NA	NA	-204.1	-370.8	186.1
1975	-5.6	-33.1	176.2	-3.1	315.5	NA	-528.3	993.2	NA	629.7	NA	NA	-224.7	-49.1	-203.2
1976	-147.4	-12.2	-117.2	80.8	43.0	NA	-958.3	660.4	NA	0.1	NA	NA	-334.2	-252.7	45.6
1977	-97.5	113.3	548.8	-24.9	121.4	NA	-47.0	2250.5	NA	481.8	NA	NA	-355.3	46.4	296.7
1978	-174.7	198.3	135.6	-23.9	151.6	NA	309.8	1599.9	NA	531.8	NA	NA	-1.6	-119.5	99.9
1979	-189.7	48.5	-473.9	-10.0	90.4	NA	257.4	337.8	NA	792.3	NA	NA	-532.3	-570.4	190.9
1980	-661.1	159.6	283.9	-8.6	71.1	-3.4	484.3	1511.9	NA	441.9	NA	NA	108.0	-158.9	-40.0
1981	-585.0	93.2	277.7	146.9	-10.6	3.4	-302.5	363.0	NA	56.5	NA	NA	-211.4	-200.5	-98.7
1982	-868.0	80.3	373.6	100.3	-26.2	-1.5	732.9	1117.6	NA	257.3	NA	NA	-401.0	-329.6	-283.4
1983	-142.8	52.2	751.9	96.1	38.1	3.6	472.7	228.2	NA	370.3	NA	NA	20.5	-151.1	-422.7
1984	-141.2	34.8	2184.3	45.1	-31.8	-9.9	814.1	225.5	NA	-41.5	NA	NA	34.1	-163.5	-212.1
1985	-180.6	-41.3	-292.3	89.9	5.7	5.8	805.9	809.1	NA	33.8	NA	-161.3	21.8	-505.1	-79.9
1986	-39.3	61.7	2487.5	6.3	35.0	8.1	-332.7	1170.5	NA	-312.4	NA	-290.7	-78.3	-173.2	-129.9
1987	-51.8	52.9	1477.3	45.9	62.4	3.7	1031.8	1956.0	46.4	285.7	NA	-187.4	-238.3	-59.2	-80.0
1988	-124.4	-6.2	486.8	29.9	131.7	-0.6	-448.9	1191.1	26.9	-139.9	NA	-339.0	-147.1	-622.1	-48.8
1989	333.0	270.4	1561.9	-14.2	5.7	2.8	302.4	1606.9	17.2	314.7	NA	-182.5	-306.3	-184.5	223.2
1990	-116.9	69.4	1268.5	51.3	183.8	-1.8	-164.6	3155.0	9.8	468.1	NA	72.5	35.9	-126.3	-119.8
1991	-204.0	-29.6	977.1	78.8	69.6	16.6	-105.6	2058.1	45.1	157.8	NA	-61.1	-279.8	-574.7	-340.0
1992	-17.1	161.4	1827.5	-94.5	56.2	-1.3	450.3	1516.5	32.8	-134.2	NA	285.4	39.0	-603.4	-52.5
1993	-183.7	112.2	500.4	-15.5	-1.5	4.0	90.4	1790.6	51.8	-66.6	NA	-61.3	-53.3	-675.0	-181.4
1994	120.6	166.7	1628.0	34.3	41.0	67.8	-230.0	-182.4	62.8	468.6	NA	11.2	-62.2	-214.7	79.3

continued next page

Table A.4 Continued

a. World Bank method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001)

	Benin	Burkina Faso	Cameroon	Central African Republic	Chad	Comoros	Congo	Côte d'Ivoire	Equatorial Guinea	Gabon	Guinea-Bissau	Mali	Niger	Senegal	Togo
1995	155.8	541.3	483.7	524.1	27.6	-6.2	414.2	1968.8	20.1	126.2	NA	100.9	-132.7	-15.9	184.1
1996	-43.7	259.9	376.3	240.8	48.0	2.6	-1513.2	691.5	32.9	294.1	NA	-124.7	-434.3	-565.2	-43.3
1997	-67.2	12.7	2300.2	-4.4	52.4	-161.0	909.5	1554.2	20.5	948.3	NA	152.6	-285.7	-423.3	-153.8
1998	-286.3	210.2	394.4	50.9	-32.2	-154.0	899.2	-10.6	32.5	78.5	38.1	-114.9	-92.5	172.8	-48.2
1999	-274.7	81.6	-354.6	-8.1	-56.6	-8.1	1002.7	-670.1	-6.3	596.9	1.7	-257.0	-165.4	-332.3	-153.1
2000	-98.1	-231.2	440.9	-29.5	-96.5	5.4	1332.3	-496.1	-67.5	724.7	-157.9	-405.7	-419.1	-964.4	-430.5
2001	127.4	-70.2	-1279.1	-39.5	-17.1	27.8	354.4	-538.1	51.8	67.7	-79.7	-303.6	-434.1	184.2	-374.4
2002	-29.7	-22.2	-110.3	228.5	-645.8	23.6	493.1	934.0	47.9	447.5	7.0	264.6	-413.2	148.5	-245.3
2003	-170.6	136.4	-1050.7	-75.3	24.3	-6.4	2146.0	2979.0	127.6	143.5	1.2	-87.9	-210.1	-328.5	-501.5
2004	-206.8	-157.8	-433.6	-39.1	430.1	21.8	4023.1	346.9	-136.6	1026.4	-35.7	74.3	-389.7	-723.7	-101.4
2005	-403.8	-324.5	-955.9	61.2	515.5	-9.3	636.4	1366.1	-623.5	NA	-69.5	-406.4	-187.5	-624.0	-751.8

Source: Author's computations using data from: World Bank (2007a) ; World Bank (2007c); IMF (2007a); IMF (2004a); IMF (2004b); IMF, *Selected Issues and Statistical Appendix* (in www.imf.org).

Table A.4 Continued

b. Morgan Guaranty method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001)

	Benin	Burkina Faso	Cameroon	Central African Republic	Chad	Comoros	Congo	Côte d'Ivoire	Equatorial Guinea	Gabon	Guinea-Bissau	Mali	Niger	Senegal	Togo
1970	-4.1	44.8	-91.7	-28.8	58.0	NA	NA	267.0	NA	193.1	NA	NA	47.0	-63.5	63.8
1971	-13.6	38.2	-34.5	14.6	164.9	NA	-60.9	355.1	NA	343.9	NA	NA	63.9	-33.3	28.4
1972	-5.6	32.0	-295.8	26.3	168.3	NA	-15.5	668.8	NA	574.8	NA	NA	84.9	-81.7	14.1
1973	1.8	-11.9	-551.2	81.9	160.8	NA	122.8	483.9	NA	387.2	NA	NA	107.8	-167.4	84.7
1974	54.9	146.2	1.7	11.1	82.7	NA	-246.4	-9.4	NA	855.8	NA	NA	-210.8	-380.4	47.4
1975	-111.9	-33.9	178.3	-3.0	308.7	NA	-524.2	1285.9	NA	627.4	NA	NA	-218.4	-57.7	-91.6
1976	-31.9	-8.1	-136.4	63.8	36.2	NA	-963.9	499.5	NA	-41.0	NA	NA	-344.4	-283.9	29.0
1977	-99.5	108.0	520.4	-15.8	126.5	NA	-49.1	2176.6	NA	491.8	NA	NA	-379.3	28.2	284.9
1978	-171.8	197.7	125.2	-32.0	135.4	NA	296.0	1653.8	NA	544.7	NA	NA	9.8	-120.4	30.6
1979	-187.9	53.3	-470.9	-16.5	88.3	NA	254.3	377.8	NA	768.3	NA	NA	-564.2	-581.6	182.0
1980	-658.2	151.2	280.8	-12.2	73.8	NA	487.3	1511.8	NA	464.2	NA	NA	135.1	-165.5	-11.2
1981	-588.3	97.9	118.8	150.9	-5.9	NA	-319.3	355.0	NA	39.3	NA	NA	-208.1	-180.8	-126.1
1982	-863.9	81.3	480.4	108.4	-24.0	-4.6	741.4	1088.5	NA	251.8	NA	NA	-392.2	-345.9	-276.9
1983	-161.0	49.7	674.9	91.5	40.7	4.6	480.6	258.6	NA	385.2	NA	NA	10.5	-137.5	-398.6
1984	-138.4	33.3	1992.5	44.4	-44.8	-8.0	805.0	165.5	NA	-31.6	NA	NA	42.4	-157.5	-212.4
1985	-178.9	-45.4	-487.0	74.1	-6.6	1.2	791.4	772.7	NA	19.7	NA	-149.9	26.2	-506.9	-84.2
1986	-52.5	60.0	2889.4	-1.8	48.4	10.3	-330.9	1180.4	NA	-334.3	NA	-303.0	-85.6	-170.7	-121.0
1987	-48.4	21.2	1281.1	43.7	60.2	5.9	1021.8	1924.6	39.4	290.3	NA	-190.6	-237.4	-58.9	-107.1
1988	-121.8	-1.3	341.5	50.4	135.2	-6.9	-458.4	1237.2	31.0	-141.7	NA	-329.3	-157.6	-645.2	-66.4
1989	344.3	255.4	1461.5	-11.0	2.3	4.7	310.8	1622.6	18.1	265.1	NA	-234.9	-305.1	-215.8	176.5
1990	-136.3	56.3	1655.5	48.9	139.8	-1.8	-175.7	3099.7	7.8	460.5	NA	63.0	33.8	-87.8	-81.6
1991	-234.8	-11.1	941.8	82.5	99.4	14.3	-107.7	2087.8	44.5	159.5	NA	-48.3	-284.9	-592.4	-350.4
1992	-39.5	150.2	1912.3	-94.1	56.3	0.4	430.7	1467.5	32.3	-104.3	NA	308.5	37.1	-610.4	-46.0
1993	-209.9	107.1	512.3	-13.0	23.5	5.8	73.8	1824.4	54.0	-57.2	NA	-45.6	-50.1	-670.3	-148.5
1994	68.1	53.9	1575.9	29.2	38.2	70.5	-184.4	-210.5	60.9	436.5	NA	-90.6	-80.7	-283.9	22.8
1995	54.2	437.0	488.4	529.5	28.9	-8.5	423.0	1808.7	20.8	133.2	NA	53.1	-133.6	-46.3	182.6
1996	-84.7	302.2	418.8	242.8	47.4	2.8	-1513.2	778.9	33.0	207.5	NA	-96.7	-427.7	-551.5	-32.4
1997	-52.8	59.8	2284.6	-5.0	29.7	-163.2	915.1	1555.9	23.1	1046.5	NA	172.4	-291.7	-428.1	-118.1
1998	-311.8	210.3	375.6	50.0	-23.5	-151.6	897.9	-58.1	15.8	71.1	38.0	-123.0	-89.3	99.2	-51.3

continued next page

Table A.4 Continued

b. Morgan Guaranty method adjusted for exchange rate fluctuations, trade misinvoicing and inflation (Boyce and Ndikumana, 2001)

	Benin	Burkina Faso	Cameroon	Central African Republic	Chad	Comoros	Congo	Côte d'Ivoire	Equatorial Guinea	Gabon	Guinea-Bissau	Mali	Niger	Senegal	Togo
1999	-237.7	12.4	-397.5	-12.9	-73.0	-14.5	997.4	-713.0	-28.9	593.3	4.5	-247.9	-172.1	-372.3	-143.5
2000	-58.4	-210.9	441.2	-26.9	-84.4	7.8	1225.7	-396.7	-55.6	559.9	-143.6	-429.3	-416.2	-927.0	-451.9
2001	102.2	-46.6	-1269.2	-36.1	-31.8	24.8	471.9	-508.2	37.9	173.8	-81.2	-357.8	-446.4	165.3	-380.2
2002	-62.1	-36.6	-206.9	227.2	-644.5	25.6	382.8	789.9	-17.3	464.1	2.0	269.8	-407.9	25.3	-261.9
2003	-182.2	92.1	-1116.7	-75.8	26.8	-4.1	2230.8	3050.5	159.0	94.7	-1.6	-115.7	-226.5	-452.4	-515.9
2004	-251.0	-180.2	-500.7	-45.1	429.4	23.2	3982.5	291.6	-169.8	813.3	-37.3	19.8	-403.7	-818.5	-149.9
2005	-362.6	-267.6	-978.7	64.7	506.3	-13.0	586.1	1314.0	-660.3	NA	-61.6	-378.8	-192.1	-552.7	-746.2

Source: Author's computations using data from: World Bank (2007a) ; World Bank (2007c); IMF (2007a); IMF (2004a); IMF (2004b); IMF, *Selected Issues and Statistical Appendix* (in www.imf.org).

Appendix 5

Table A.5: Remittances to FZ countries, 1970–2005 (million 2000 $US)

Country	Total	Mean annual	% of GDP
Benin	2201.6	68.8	4.2
Burkina Faso	3128	97.8	4.7
Cameroon	424	15.7	0.2
Central African Republic	3	1.0	0.2
Chad	5	0.8	0.1
Comoros	239	9.2	4.1
Congo	105	7.0	0.3
Côte d'Ivoire	2242	72.3	0.7
Equatorial Guinea	1	1.0	0.6
Gabon	58	5.3	0.1
Guinea Bissau	121	7.6	3.1
Mali	2544	82.1	3.6
Niger	483.5	15.1	0.7
Senegal	5300	165.6	3.5
Togo	1071	33.5	2.2
WAEMU	17091.1	67.8	2.8
CEMAC	596	5.1	0.2
Franc Zone	17926.1	27.4	2.4

Source: Author's computations using data from: World Bank (2007b).

Appendix 6

Table A.6: Armed conflict episodes in the FZ countries: 1970–2005

Country	Intensity level of conflict	Year of observation
Benin*		
Burkina Faso	1	1985 and 1987
Cameroon	1	1984 and 1996
Central African Republic	1	2001 and 2002
Chad	1	1970, 1971, 1972, 1976, 1977, 1981, 1982, 1983, 1984, 1986, 1989, 1991, 1992, 1993, 1994, 1997, 1998, 1999, 2000, 2001, 2002 and 2005
	2	1978, 1979, 1980, 1987 and 1990,
Comoros	1	1989 and 1997
Congo	1	1993, 1994, 1999 and 2002
	2	1997 and 1998
Côte d'Ivoire	1	2002, 2003 and 2004
Equatorial Guinea	1	1979
Gabon*		
Guinea-Bissau	1	1970, 1971, 1972, 1973 and 1999
	2	1998
Mali	1	1985, 1990 and 1994
Niger	1	1992, 1994, 1996 and 1997
Senegal	1	1990, 1992, 1993, 1995, 1997, 1998, 1999, 2000, 2001 and 2003
Togo	1	1986 and 1991

Source: Uppsala Conflict Data Program (UCDP)/Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO) Armed Conflict Dataset, Version 4-2008.
Note: * Non-armed conflict country.

Appendix 7

Table A.7: Definitions and sources of variables

Variable	Definition	Source
AIDP	Ratio of aid to GDP	World Bank (2007c)
AUTRELT	Long-term debt denominated in other unspecified currencies	World Bank (2007a)
CAF	The c.a.f/f.a.b factor, representing the cost of freight and insurance	IMF (2007)
CC	Current account balance	IMF (2004a)
CONEX	Constraints on the executive power, (institutional quality indicator), takes values ranging from 1 to 7	Polity IV Project's Database
CPP	Ratio of credit to the private sector to GDP	World Bank (2007c)
CRFMI	The use of IMF credit denominated in Special Drawing Rights	World Bank (2007a)
DBPP	Ratio of primary budget deficit to GDP	World Bank (2006) and World Bank (2007c)
DEP	Ratio of deposits to GDP; these deposits are defined as the sum of demand deposits, time, saving, and foreign currency deposits	IMF (2007a) and World Bank (2007c)
DET	The stock of the debt of year t measured by the exchange rate at the end of year t	World Bank (2007a)
DETCT	Short term debt	World Bank (2007a)
DETLT	Total long-term debt	World Bank (2007a)
DETLTEU	Long-term debt denominated in U.S. dollars	World Bank (2007a)
DETP	Ratio of external debt to GDP	World Bank (2007a) and World Bank (2007c)
DEX	The export discrepancies between the ACFZ and the industrialized countries (Boyce and Ndikumana, 2001)	My computations using data from IMF (2004b)
DIFIDB	Interest rate differential ie the domestic deposit rate minus the France Treasury bill rate minus the percentage change in the official exchange rate	World Bank (2007c)
DIFINF	Inflation rate differential between the ACFZ and France	World Bank (2007c)

continued next page

Table A.7 Continued

Variable	Definition	Source
DIFTCP	Real GDP growth rate differential between the ACFZ and France	World Bank (2007c)
DIM	The import discrepancies between the ACFZ and the industrialized countries (Boyce and Ndikumana, 2001)	My computations using data from IMF (2004b)
EXP	Ratio of total exports to GDP	IMF (2004b) and World Bank (2007c)
EXPAZF	The ACFZ's exports to industrialized countries as reported by the ACFZ	IMF (2004b)
EXPI	The industrialized countries' exports to the ACFZ as reported by the industrialized trading partners	IMF (2004b)
FALSCOM	Total trade misinvoicing (Boyce and Ndikumana, 2001)	My computations using data from IMF (2004b)
FCRP	Ratio of real capital flight to GDP	Table 3 and World Bank (2007c)
GOUVER	Governance indicator, takes values ranging from -10 to 10	Polity IV Project's Database
IDEP	Ratio of foreign direct investment to GDP	IMF (2004a) and World Bank (2007c)
IMPAZF	The ACFZ's imports from the industrialized countries as reported by the ACFZ	IMF (2004b)
IMPI	The value of the industrialized countries' imports from the ACFZ as reported by the industrialized trading partners	IMF (2004b)
INDE	Net direct foreign investment	IMF (2004a)
INTCONF	The intensity level of the conflict	Uppsala Conflict Data Program (UCDP)/International Peace Research Institute, Oslo (PRIO) Armed Conflict Dataset, Version 4-2008: www.ucdp.uu.se - www.prio.no/cscw
IPPEU	US Producer price index	World Bank (2007c)
MULTLT	Long-term debt denominated in multiple currencies	World Bank (2007a)
NOUDET	The stock of the debt of year t-1 measured by the exchange rate at the end of year t (Boyce and Ndikumana, 2001)	My computations using data from World Bank (2007a) and IMF (2007a)
PMEX	The average shares of industrialized countries in the ACFZ's exports	IMF (2004b)
PMIM	The average shares of industrialized countries in the ACFZ's imports	IMF (2004b)
TC_j	The end-of-year exchange rate of the currency of denomination against the dollar (expressed as units of currency per U.S. dollar)	IMF (2007a)

continued next page

Table A.7 Continued

Variable	Definition	Source
TECH	Terms of trade	World Bank (2007b)
TFMP	Ratio of remittances to GDP	World Bank (2007b)
TSF	Size of the financial system measured as the ratio of total liquid liabilities to GDP	World Bank (2007c)
VARDB	Budget deficit variability (or uncertainty) measured as the absolute value of the difference between actual budget deficit and predicted budget deficit, the predicted budget deficit is computed by using an autoregressive equation of order 2	My computations referring to Ndikumana and Boyce (2007) and Hermes and Lensink (2001)
VARDCG	Government consumption variability (or uncertainty) measured as the absolute value of the difference between actual government consumption and predicted government consumption, the predicted government consumption is computed by using an autoregressive equation of order 2	My computations referring to Ndikumana and Boyce (2007) and Hermes and Lensink (2001)
VARINF	Inflation variability (or uncertainty) measured by the absolute value of the difference between actual inflation and predicted inflation, the predicted inflation is computed by using an autoregressive equation of order 2	My computations referring to Ndikumana and Boyce (2007) and Hermes and Lensink (2001)
VARTAX	Tax variability (or uncertainty) measured by the absolute value of the difference between actual tax and predicted tax, the predicted tax is computed by using an autoregressive equation of order 2	My computations referring to Ndikumana and Boyce (2007) and Hermes and Lensink (2001)
VARTI	Interest rate variability (or uncertainty) measured by the absolute value of the difference between actual interest rate and predicted interest rate, the predicted interest rate is computed by using an autoregressive equation of order 2	My computations referring to Ndikumana and Boyce (2007) and Hermes and Lensink (2001)
α_j	The proportion of long-term debt held in currency j (j = French franc, the German Deutsche mark, the Japanese yen, the Swiss franc, the Special Drawing Rights, the UK pound, and the Euro)	World Bank (2007a)
ΔABD	The change in the short-term foreign assets of the domestic banking system	IMF (2007a)
ΔDET	Change in the stock of the debt of year t measured by the exchange rate at the end of year t	World Bank (2007a)
ΔDETAJU	The adjusted change in debt for fluctuations in the exchange rate of the dollar against other currencies (Boyce and Ndikumana, 2001)	My computations using data from World Bank (2007a) and IMF (2007a)

continued next page

Table A.7 Continued

Variable	Definition	Source
ΔDETAJUP	The ratio of the adjusted change in debt for fluctuations in the exchange rate of the dollar against other currencies to GDP (Boyce and Ndikumana, 2001)	My computations using data from World Bank (2007a), IMF (2007a) and World Bank (2007c)
ΔDETCTP	The ratio of the change in short term debt to GDP	World Bank (2007a) and World Bank (2007c)
ΔEXFU	The ratio of the change in export of fuel to GDP	World Bank (2007c)
ΔRES	Change in foreign reserves	IMF (2004b)
ΔTCER	Variation in real effective exchange rate measured as the consumer price index divided by the product between official exchange rate and the France consumer price index	Easterly and Yu (2000)

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