



WORLD DEVELOPMENT REPORT 2011

BACKGROUND NOTE

CAPITAL FLIGHT AND VIOLENT CONFLICT

A REVIEW OF THE LITERATURE

Victor A.B. Davies

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1 Introduction

This paper reviews the literature on capital flight and violent conflict to attempt to answer the following questions. What happens to capital flight before, during, and after violent conflict? What are the implications for economic recovery from conflict?

Broadly speaking, capital flight refers to outflows of private capital from developing countries. However, while economists generally agree that capital flight could be deleterious to economic development, they do not agree on the definition of the phenomenon. The lack of consensus stems in part from the fact that capital flight is unobservable and has to be estimated. A wide range of approaches to estimating capital flight have been proposed. Many measures estimate capital flight as the residual between an economy's sources and uses of foreign exchange. Differences arise as to what constitutes sources and uses of foreign exchange. World Bank (1985), Morgan Guaranty (1986) and Cline (1995) are among the more commonly used measures. In World Bank (1985), changes in gross foreign public debt and net foreign investment are the sources of funds. Morgan Guaranty (1986) subtracts the increase in short-term foreign assets of the banking system from World Bank (1985) to arrive at a measure capturing the acquisition of foreign assets by the non-bank private sector. Cline (1995) excludes private capital income retained abroad from the current account balance. For all the above measures, the current account balance (however defined) and increase in reserves, constitute uses of foreign exchange.

Non-residual measures include Dooley (1986) who defines capital flight as illegitimate or undeclared foreign assets, that is, the part of a country's stock of foreign assets that does not generate income reported to the domestic authorities. Cuddington (1986)

defines capital flight as “hot money” fleeing political and financial crisis, heavier taxes, capital controls, currency devaluation, or hyperinflation.

While alternative capital flight measures may differ conceptually, data limitations often lead to approximations, producing strong correlations among them (Cardoso and Dornbusch 1989, and Claessens and D. Naudé 1993). Nevertheless, the multiplicity of capital flight measures suggests that attention needs to be paid to the measure used in any particular context. It also begs the question of which capital flight measure would be the most useful to study in relation to violent conflict. Davies (2008) argues for the Cline measure since it focuses on capital outflows that were initially held domestically and only moved abroad in the computing period. One could argue that capital held domestically is exposed to the risks associated with violent conflict and its aftermath while capital already held abroad is not because the conflict in question does not take place in the country where it is held.

Another issue is whether to estimate capital flight as a flow or stock. Flow measures estimate the amount of capital that left the country in a given period, usually one year. Stock measures cumulate past levels of capital flight to arrive at the total quantity of capital that has left the country up to the period in question. Collier, Hoeffler and Pattillo *et al* (2001 and 2004) view stocks estimation as the appropriate approach, arguing that capital flight is part of a wider portfolio decision involving total wealth stock. However, estimating private wealth in developing countries is particularly challenging. More generally, estimating stocks poses additional problems. Stocks are usually obtained by capitalizing flows using a benchmark interest rate such as the US Treasury Bill rate. However, errors could result if the returns to foreign assets differ significantly from that rate. Most stock estimates ignore capital consumption. Data gaps further complicate stock estimation as a decision would have to be made as to what to do for periods in which estimates are unavailable. Thus, estimating stocks could compound the errors inherent in capital flight estimation.

Capital flight is often studied as a portfolio-choice decision driven by differentials in relative risk-adjusted expected return (Collier, Hoeffler and Pattillo 2001 and 2004). According to this view, factors that influence risk-adjusted expected return in a given country vis-a-vis the rest of the world may influence capital flight. In the literature a very large number of variables have been found to be significant. These include external debt (Ndikumana and Boyce 2003; Collier, Hoeffler and Pattillo 2001), the black market premium (Collier, Hoeffler and Pattillo 2004); inflation (Cuddington, 1987; Dooley, 1988); and economic growth (Murinde, Hermes and Lensink, 1996). Most studies also report path dependence in capital flight (see for instance, Ndikumana and Boyce (2003), Mikkelsen (1991) and Vos (1992)).

Violent conflict enters the portfolio-choice framework directly as a factor that could increase the riskiness of the domestic environment, reducing risk-adjusted expected return, and thereby inducing capital flight. The effect of conflict on capital flight is likely to depend on a number of factors such as the nature, intensity and duration of the conflict. In resource-rich countries, an internal conflict might increase the vehicles for capital flight: During wartime, the sale of primary commodities such as diamonds from Sierra Leone, Angola, and the Democratic Republic of Congo; narcotics from Afghanistan and Colombia; and timber from Cambodia; could have served as a vehicle for capital flight as well as a means of financing the rebellion. Thus, in countries rich in natural resources that could be sold abroad relatively easily, the impact of violent conflict could be much larger. The impact of a localised internal conflict is likely to be less than a bigger conflict that affects much of the country.

Violent conflict also enters the portfolio-choice framework indirectly, through its possible impact on other variables that affect risk-adjusted expected return such as inflation and public debt. However, the regression models that have been empirically estimated tend to

capture only the direct effect because they typically control for some of the variables that may be affected indirectly.

The impact of conflict termination on capital flight is somewhat unpredictable in the portfolio-choice framework. It could lead to a decline in capital flight by reducing political risks and providing high-return investment opportunities in the domestic economy. On the other hand, fears of war resumption could keep perceived risks high. Ultimately, perceived risks are likely to diminish as peace endures.

The portfolio-choice framework has its own drawbacks especially in a context of violent conflict. Notably, it appears to miss the motivation for capital flight involving misappropriated or looted funds which might be widespread during violent internal conflict such as civil war. In such circumstances the primary motivation might be to take the funds abroad to a location where they cannot be traced or retrieved by lawmakers.

2 The Evidence and Its Implications

While capital flight has been studied extensively in the empirical literature, its relationship with violent conflict has attracted much less attention. The few studies that have focused on this issue report that violent conflict or political instability does increase several of the capital flight measures. Le and Zak (2006), based on a panel of 45 developing countries over the 1976-1991 period, find that violent uprisings – purges, guerrilla warfare and assassinations – and irregular government change (through unconstitutional means) increase the World Bank (1985) capital flight measure while non-violent collective protests (strikes, riots and anti-government demonstrations) reduce it.¹ The authors, who apparently use capital flight flow measures, obtain estimates of 0.007 and 0.008 for the coefficient of the variable capturing

¹ It's not clear why the authors consider riots to be non-violent.

violent uprisings. Le and Zak do not discuss the quantitative importance of their estimates. They interpret the finding of a reduction in capital flight in countries experiencing non-violent organised protests as due to the fact that such countries often undertake reforms, including transitions to democracy, that lead to increased stability.

Lensink, Hermes and Murinde (2000), using time average values of variables for 84 countries over the 1971-1991 period, report a positive relationship between a variable measuring the number of revolutions per year and the Morgan Guaranty, Hot money and Dooley capital flight flow measures. The relationship is also positive between the Morgan Guaranty and Dooley measures, on the one hand, and a dummy variable for countries that participated in at least one external war during 1960-85. The authors find no statistically significant relationship between the Hot Money capital flight measure and that dummy variable. The coefficient estimates of the dummy variable are 1.91 for the Morgan Guaranty measure, and 2.56 for the Dooley measure, significant at 1%. The estimates for the coefficient of the variable measuring the number of revolutions per year is 7.22 for the Morgan Guaranty measure, 2.37 for the Hot money measure and 8.84 for the Dooley measure. The authors do not discuss the quantitative importance of these seemingly large estimates.

Collier, Hoeffler and Pattillo (2004) use data for 48 countries for the period 1970-98 to study the determinants of financial capital flight (the subject of this paper), and human capital flight (the proportion of a country's educated population living abroad). The authors generate stock estimates of a modified version of the World Bank (1985) capital flight measure. They find that civil war increases capital flight. Civil war is measured as the number of months per year a country experienced an "internal major armed conflict" (a conflict involving more than 1000 deaths per year). The focus in Collier, Hoeffler and Pattillo (2004) is not on violent conflict and the discussion of that issue is scanty. The authors obtain

civil war coefficient estimates ranging from 0.001 to 0.01, significant at 1%. These results suggest that a unit increase in the number of months of civil war is associated with a 0.1 to one percentage point increase in the ratio of the stock of financial wealth held abroad to total wealth.

That violent conflict increases capital flight raises a question: What policies would induce a repatriation of flight capital after war? Davies (2008) empirical work involving 77 developing countries and four different capital flight measures – World Bank (1985), Morgan Guaranty (1986), Cline (1995) and Dooley (1986) – suggests that low inflation may be part of the answer. The author finds that inflation has a positive differential impact on capital flight in a post-war environment – over and above any possible general impact. A one percentage point reduction in the post-war inflation rate is associated with a differential decrease in annual capital flight flows of about 0.005 to 0.01 percentage points of GDP. This effect is substantial relative to the mean annual level of capital flight flows in the panel which ranges from -1.3% of GDP for the Cline measure, to 1.5% for the World Bank measure. Table 1 shows that in the Davies (2008) panel, inflation falls from an average of 117% during wartime, to 67%, post-war. On average, this 50 percentage point fall in inflation reduces capital flight by 0.25 to 0.5 percentage points of GDP. Davies uses the UCDP/PRIO classification of violent conflict as an episode in which an accumulated total of at least 1000 battle-related deaths occurred with at least 25 battle-related deaths occurring each year during the period. He conflates internal and inter-state conflicts in the analysis.

Table 1: Mean Annual Inflation (%)

Conflict countries				Non-conflict countries	All countries
Peacetime	Wartime	Post-war period	All period average		

34	117	67	73	41	56
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Source: Davies (2008) based on a panel of 77 developing countries.

For countries facing much higher wartime inflation rates, much bigger reductions in capital flight could be realised through larger cuts in inflation. Table 2 highlights Nicaragua's particularly striking case. Inflation averaged 3358% a year from 1985-89, during the civil war years. It peaked at over 7000% in 1990. Annual capital flight flows were correspondingly high. In 1990 they ranged from 58% to 65% of GDP by the four measures used. Recall that the average for the sample of 77 countries in Davies (2008) ranged from -1.3% to 1.5% of GDP by the four measures. By post-war 1994, Nicaragua had cut its inflation rate to 7%. By then capital flight flows were negative, which could be interpreted as a sign of capital flight repatriation. Other countries that experienced high wartime inflation episodes include the Democratic Republic of Congo (251% inflation in 1997-2000), and Peru (2990% inflation in 1988-91).

Table 2: Nicaragua's High Inflation Experience

Period		Inflation %	Annual capital flight flows % GDP			
			Cline	Dooley	Morgan Guaranty	World Bank
Wartime (1985-89)		3358	6.7	19	11.9	19.8
Postwar	1990	7485	62	58	65	65
	1991	2945	33	36	35	37
	1992	24	-32	-32	-31	-30
	1993	20	-17	-12	-15	-15
	1994	7	-7	-3	-5	-5

Source: Davies (2008) dataset.

Viewed in conjunction with the finding from Adam, Collier and Davies (2008) that aid reduces dependence on inflationary seigniorage after war, the Davies (2008) finding suggests a very strong role that aid could play in postwar macroeconomic recovery: Aid would induce low inflation by reducing resort to seigniorage. Low inflation in turn would induce capital flight repatriation which in turn could foster economic growth. These effects are also consistent with Collier and Hoeffler (2004) who find that aid is particularly effective in promoting postwar economic growth.

The empirical literature has its own limitations. Differences in methods of estimating capital flight and variables capturing violent conflict and political instability limit the scope for comparison across studies. Moreover, sometimes, details about how capital flight is estimated are vague while little attention is paid to discussing the quantitative importance of the coefficient estimates. Very few studies have been conducted in all. These limitations suggest that the results reported in the literature should be regarded as preliminary.

Many issues are yet to be investigated such as the question of what happens to capital flight prior to violent conflict. The answer may provide the basis for an early warning mechanism to violent conflict. Some empirical results are difficult to rationalize. For instance, Collier, Hoeffler and Pattillo (2004) find that civil war reduces human capital flight, a result for which they have “no satisfactory explanation”. Also, Le and Zak (2006) find that major regular government change – defined as constitutional transfer of the executive office within the ruling party or the coalition of ruling parties – reduce capital flight. The authors argue that major and minor changes signal that market-oriented reforms are occurring.

3 Concluding Comments:

Empirical studies suggest that violent conflict and political instability are associated with increased capital flight, implying that by the end of such conflicts, a considerable amount of capital could have accumulated abroad. Davies (2008) suggests that curbing inflation post-war would help reduce and even reverse capital flight. This finding, in conjunction with those from studies that have focused on other aspects of the economic consequences of violent conflict, suggest that the control of inflation may be key to post-war economic recovery.

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