



# International capital flows and investment volatility in selected sub-Saharan African countries

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Available online 5 October 2011

## Abstract

The study examines the impact of foreign capital flows on investment volatility in emerging and frontier market economies in sub-Saharan Africa. In particular, the study attempts to answer the question of whether different components of foreign capital inflows explain investment volatility. Theory suggests that increased cross-border capital mobility increases investment volatility due to the possibility of substituting foreign for domestic investments. Empirical literature does not, however, provide any clear evidence in support of this theory. By using the dynamic panel data analysis, this study tests the hypothesis that increased capital flows increases investment volatility and the study established that international capital flows reduce investment volatility.

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*JEL classification:* E2; E62; F2; F4; F21

*Keywords:* Foreign capital inflows; Total investment; Domestic investment; Investment volatility; Emerging market economies; Frontier market economies

## 1. Introduction

The increase in international capital flows, accompanied by a series of economic crisis in the past three decades, has given rise to concerns about the impact of the flows on national economies (Reinhart and Rogoff, 2009). This, in turn, has led to an intensive debate, among academics and policymakers, about the impact of international financial integration. An important feature of the ensuing debate is how the increased capital flows affects investment volatility (Calderon and Schmidt-Hebbel, 2008; Pallage and Robe, 2003).

It is hypothesized by Backus et al. (1992), Razin and Rose (1994) and Hirata et al. (2004) that increased cross-border capital flows enhances substitution possibilities between domestic and foreign investments, and hence, increase investment volatility.

Razin and Rose, also contend that the impact of international capital mobility on investment volatility depends on the persistence of productivity shocks. Studies, including Razin and Rose (1994), Denizer et al. (2000), Grenade (2004) and Hirata et al. (2004), have examined the impact of international capital flows on investment volatility. However, these studies do not provide any clear evidence on the link between capital flows and investment volatility.

To the best of our knowledge, the relationship between foreign capital flows and investment volatility in sub-Saharan Africa is yet to be explored. Also, studies that examine the impacts of types of foreign capital flows on investment volatility are yet to be identified.

This study seeks to test the hypothesis that higher levels of international capital flows lead to an increase in investment volatility, using a panel data of selected sub-Saharan African countries.<sup>1</sup> The study, further, examines the impacts of the types of capital flows on investment volatility in sub-Saharan Africa. Unlike Hirata et al. (2004), this study explains the time dynamics

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<sup>1</sup> The selected countries are South Africa, Nigeria, Botswana, Ghana, Kenya, Mauritius, Mozambique, Namibia, Zambia, Uganda, Tanzania, Seychelles and Cape Verde. These countries have, to an extent, developed and deregulated their domestic financial markets, reduced restrictions on external capital flows and offered competitive investment environments to attract investments. One of the key objectives for these initiatives is the attraction of greater foreign capital flows (International Monetary Fund, 2008).

of investment volatility, using the dynamic panel regression analysis strategy.

The rest of the paper is organised as follows. Section 2 reviews literature on the relationship between international capital flows and investment volatility, as well as other determinants of investment volatility. Section 3 presents the hypothesis; the source of data used for the study, and provides definitions and measures of the chosen variable, as well as the estimation method for the study. The results for investment volatility are presented and discussed in Section 4. Finally, Section 5 summarises the findings of the research and concludes the discussion.

## 2. Literature review

### 2.1. International capital flows and investment volatility

Theoretical literature, including the works of Backus et al. (1992) and Hirata et al. (2004), predict that international financial integration should increase investment volatility. When restrictions on cross-border capital flows are reduced, the possibilities of substituting foreign for domestic investments increase, which in turn leads to an increase in investment volatility.

Razin and Rose (1994), however, argue that the impact of increased capital mobility on investment volatility is also determined by the nature of the underlying productivity shocks. If shocks are persistent and country-specific, increase capital mobility would heighten investment volatility. Conversely, when shocks are common across countries, the impact of increased capital mobility on investment volatility would be ambiguous. When shocks to productivity are transitory and common across countries, the easing of restrictions on cross-border capital flows would not affect investment spending, because of the resultant changes to international interest rates. Razin and Rose show that the impact of transitory shocks on investment behaviour is marginal, because a non-persistent shock does not lead to a significant change in the expected discounted sum of future profits. In the case of an irreversible investment, a transitory shock may not have any impact on investment.

Related empirical studies, including Razin and Rose (1994), Hirata et al. (2004), Grenade (2004) and Denizer et al. (2000) do not provide conclusive evidence on the relationship between international capital flows and investment volatility. In a panel study for 133 countries, Razin and Rose (1994) used the augmented Dickey–Fuller unit root test to examine shocks and identified a high degree of persistence in shocks which are also common across countries. By using the instrumental variables model, Razin and Rose did not find the level of capital mobility to be significantly correlated with investment volatility.

Studies that identified a negative relationship between financial integration and investment volatility include Hirata et al. (2004) for MENA countries and Denizer et al. (2000) for a panel of 70 countries. Grenade (2004) also conducted a study for the Eastern Caribbean Currency Union (ECCU) but identified financial integration to be associated with rising investment volatility.

To the best of our knowledge, the impact of the types of foreign capital flows on investment volatility is yet to be explored. Also,

studies that investigate the determinants of investment volatility in sub-Saharan Africa are yet to be identified.

### 2.2. Other determinants of investment volatility

A number of other important factors explaining investment volatility have been identified in previous studies which examined macroeconomic volatility. These factors include output growth, domestic financial depth, inflation volatility and quality of institution and are discussed below.

#### 2.2.1. Output growth

Dasgupta and Ratha (2000) and Hernandez et al. (2001) contend that a fast-growing economy is likely to create a congenial environment for higher future earnings and hence higher rates of returns, in addition to reduced risk of investments. This, in turn, leads to the attraction of greater investments and the achievement of more stable rates of investments. Empirical studies, including Ahmed et al. (2005), show that higher output growth in previous periods indicate improved growth prospects, which in turn, leads to more investment flows.

#### 2.2.2. Domestic financial depth

According to Calderon and Schmidt-Hebbel (2008), one of the mechanisms by which agents diversify risk and smooth shocks is accessing credit from the domestic financial market. Deep financial markets make credit available for direct investments and offer investors with funds needed to meet their short and long term needs. Studies, including Denizer et al. (2002) and Easterly et al. (2001), identified deep financial markets to lead to lower macroeconomic volatility. Mileva (2008a,b) also confirm the hypothesis that domestic financial depth increases the rate of investment.

#### 2.2.3. Inflation volatility

Another factor that leads to higher investment volatility is macroeconomic instability, usually measured in the context of inflation volatility. Literature, including Agosin and Mayer (2000) and Grenade (2004), indicate that high and volatile inflation increases the uncertainty of investments and heightens risk of long-term investments.

#### 2.2.4. Political instability and institution

Political instability is also noted to have adverse effects on investments. Alfaro et al. (2003) hypothesise that a favourable political climate, as well as strong government institutions create an incentive for investments. Von Furstenberg (1998) and Vo (2005) also indicate that a secure institutional foundation is a very important pre-requisite for attracting investments. In cases of political instability, investors become reluctant to spend large amounts of resources on fixed investments. Several studies that investigated the determinants of both domestic and foreign investments have largely disregarded the impact of political and institutional variables. Calderon and Schmidt-Hebbel (2008) identified political risk to be strongly correlated with output volatility. To the best of our knowledge, the impact of political

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