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Commodity prices and exchange rate volatility: Lessons from South Africa's capital account liberalization☆

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ABSTRACT

We examine the relationship between the South African Rand and the gold price volatility using monthly data for the period 1979–2010. Our main finding is that prior to capital account liberalization the causality runs from the South African Rand to the gold price volatility but the causality runs the other way around for the post-liberalization period. This finding suggests that gold price volatility plays a key role in explaining both the excessive exchange rate volatility and current disproportionate share of speculative (short-run) inflows that South Africa has been coping with since the opening up of its capital account.

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1. Introduction

Commodity exporting countries face large terms of trade fluctuations which render their real exchange rate volatile. Increased volatility in the real exchange rate hurts the economy through its adverse consequences on private agents' consumption and investment decisions.[1] South Africa, being the second largest producer of gold and in 2012 earning twice as much with gold exports than with diamond exports (1.5% of export revenues vs. 0.7% respectively), is no exception to such exposure to volatility in the real exchange rate. Since the liberalization of the capital account — the financial rand was abolished in March 1995 — the South African Rand has experienced more frequent episodes of nominal and real exchange rate volatility than before (Ricci, 2005). While Fig. 1 shows that episodes of increase in gold prices have somewhat been followed by episodes of appreciation in the South African Rand, Fig. 2 shows that, following South Africa's capital account liberalization, the action lies with the episodes of gold price volatility being followed by episodes of volatility in the South African Rand real exchange rate.[2] Interestingly, in the past decade, South Africa has also received an increasing portion of capital flows in the form of portfolio investments (Arezki et al., 2007; Draper et al., 2011). For instance foreign direct investment amounted to 0.3% of GDP in 2010 while portfolio flows amounted to 3%.[3] To explain these patterns, some commentators have suggested an explanation based on global investors speculating on South African economic developments amid gold price volatility by investing in liquid South African assets. In the present paper, we examine the relationship between the volatility in gold price and real exchange rate in South Africa.

This paper aims at making two main contributions. First, it attempts to determine the direction of the causality between the volatility in both the gold price and the real exchange rate. It is important to note that we take into account both volatilities and not the joint movement of both prices. This is a novelty. Second, it explores to which extent liberalization of the capital account has changed the relationship between gold price and exchange rate volatility for South Africa. Answering these questions is not only relevant from an academic standpoint but also from a policy perspective. Indeed, given the very high level of volatility in commodity prices, it is important for resource rich countries in general to understand better the relationship between volatility in commodity prices and the fluctuations in their exchange rate. In addition, commodity exporting countries opening up their capital account may face a very different experience than other countries. Indeed, the volatile and potentially large source of revenue derived from commodity exports may magnify the impact of such capital account liberalization on the exchange rate.

Our main finding is that prior to capital account liberalization the long-run causality runs from the South African Rand to the gold price volatility but the causality runs the other way around for the post-liberalization period. This result is indeed new and challenges current literature (Akram, 2009). A policy inference reflects that following capital account liberalization in South Africa, the capital flow composition has been tilted toward portfolio investment (Fedderke, 2010). The findings thus suggest that gold price volatility plays a key role in explaining both the excessive exchange rate volatility and the current disproportionate share of speculative (short-run) inflows that South Africa has been coping with since its capital account liberalization. The remainder of the paper is organized as follows. Section 2 discusses the basic literature and derives some hypotheses. Sections 3 and 3.1 describe the estimation strategy and the data, respectively; Section 4 discusses the main empirical results; and Section 6 concludes.

2. The literature

This paper relates to three strands of literature. First, it connects more directly to the so-called commodity currency literature. This literature provides robust empirical evidence of the relationship between the level of the exchange rate and the level of commodity prices. The latter seems to drive the former. Chen and Rogoff (2003) provide early evidence of such a relationship for a selected number of resource-rich developed

[1] Small firms in particular may find it surprisingly costly to hedge against volatility in the exchange rate by using financial instruments. This inability to hedge against exchange rate fluctuations may have important consequences on the development of export oriented sectors. See Raddatz (2011) in this context.

[2] The heightened volatility in the South African Rand during the period 1982–1985 is related to political developments, i.e. the mounting political pressure by the international community combined with sanctions against the country due to apartheid which further led to erosion of the Rand's value.

[3] The data are from the International Monetary Fund (2011).

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