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What makes a currency procyclical? An empirical investigation☆

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ABSTRACT

This paper looks at the correlation between the cyclical components of gross domestic product and the exchange rate and classifies countries' currencies as procyclical if they appreciate in good times, countercyclical if they appreciate in bad times, and acyclical otherwise. With this classification, the paper shows that: (i) the countries that are commodity exporters and experience procyclical capital flows tend to have procyclical currencies; (ii) countries with procyclical currencies tend to restrict their capital accounts, perhaps as an attempt to reduce the degree of procyclicality; (iii) countries with procyclical currencies pursue procyclical monetary policy; (iv) however, in the last decade, there is a disconnect between the cyclicality of currency and monetary policy; and (v) the disconnect may reflect a decline in the fear of floating, which can be partially attributed to an improvement in countries' net foreign asset positions.

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1. Introduction

If countercyclical monetary policy has been the norm in advanced economies, at least until recently, this was not the case in emerging economies. Why has it been so difficult for emerging markets to adopt countercyclical monetary policies? If institutional weaknesses perhaps constitute one part of the story (Vegh and Vuletin, 2002, and McGettigan et al., 2013),[1] the other common explanations point to specific factors that influence the way emerging markets are affected by, and cope with, the business cycle fluctuations.

One such factor that has received the most attention in the literature is the cyclicality of capital flows. Kaminsky et al. (2004), KRV henceforth, show that capital flows to emerging markets are procyclical, that is, plentiful in good times and meager in bad times; as a result they tend to pursue procyclical macro policies. The combination of procyclical capital flows and procyclical policies contributes to the "when it rains it pours" phenomenon.[2]

While sharing KRV's view that procyclical capital flows are a key driver of the business cycle in emerging markets, we look at a different variable in this paper: the degree of cyclicality of currencies. More precisely, we compute a currency cyclicality index (CCI) as the correlation between the cyclical components of the nominal (effective) exchange rate and GDP. We show that some currencies, particularly those of emerging markets, have a tendency to appreciate when the business cycle is strong and others, mainly those of advanced economies, have a tendency to appreciate when the business cycle is weak. We christen the former "procyclical," and the latter "countercyclical."[3] Even though the degree of cyclicality of a currency differs sharply across emerging and advanced economies, it has not yet received much attention in the literature. The analysis of CCI helps us improve our understanding of the relationship between the cyclical co-movements of economic growth and exchange rate, the correlates of this relationship, and its impact on policies.

The relationship between economic activity and exchange rate behavior is a priori ambiguous. In the theoretical literature this relationship is model dependent. In the original Mundell-Fleming framework, if a positive income shock in a country deteriorates the current account, the adjustment occurs through a devaluation of the currency, predicting the correlation between economic growth and exchange rate to be countercyclical (i.e., the currency depreciates in good times). Instead, the correlation is predicted to be procyclical in monetary models, where the value of currency is a function of money demand (Lucas, 1982) and stronger growth increases the (domestic) demand for money under both flexible (Frenkel, 1976) or sticky prices (Dornbusch, 1976).[4] In the new open economy macro models *à la* Obstfeld and Rogoff (1995), instead, an increase in domestic output relative to foreign output leads to a depreciation of the exchange rate—a positive productivity shock increases the volume of the domestically produced varieties and decreases their relative price.

The empirical literature does not provide any clear guidance either on the relationship between economic activity and exchange rate behavior. The lack of a clear pattern between the growth rates of consumption and the real exchange rate is documented by Backus and Smith (1993) and subsequently by Chari et al. (2002) and Corsetti et al. (2008). Despite some important progress in empirical exchange rate modeling (see, for instance, Engel et al., 2008), the current knowledge on the behavior of exchange rate and its determinants remains quite limited (Rogoff, 2009).

We calculate the CCI using quarterly data for 63 countries over a period of 30 years. Following an identification strategy similar to that in KRV, we assume that the business cycle is driven by the capital

[1] Vegh and Vuletin (2012) measure institutional strength by an index based on the international risk guide dataset, while McGettigan et al., 2013 proxy institutional strength by the adoption of inflation targeting and stability of government in the ICRG database.

[2] KRV contrast the experience of developing, middle income (loosely overlapping with the set of emerging markets in the parlance that we have adopted in this paper) and developed economies and find that while capital flows are procyclical across all kinds of countries, fiscal policy is procyclical in developing and middle income countries, and the procyclicality of monetary policy is most pronounced in the latter. Thus, the "when it rains it pours" phenomenon, that is, the vicious circle of business cycle and policy cyclicality, affects emerging markets the most.

[3] A preliminary discussion of currency cyclicality in emerging markets can be found in Cordella et al. (2014).

[4] See Chinn (2013) for a recent survey.