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The behavior of currencies during risk-off episodes☆

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ABSTRACT

Episodes of increased global risk aversion, also known as risk-off episodes, have become more frequent and severe since 2007. During these episodes, currency markets exhibit recurrent patterns, as the Japanese yen, Swiss franc, and U.S. dollar appreciate against other G-10 and emerging market currencies. The pattern of these moves can be explained by a combination of fundamental factors, such as the nominal interest rate, the international investment position and measures of exchange rate misalignment, and market-liquidity factors, such as bid-offer spreads and restrictions on international capital flows. We also find that currency performance in a risk-off episode has become more related to a currency's yield and relationship to broader risks in recent years.

1. Introduction

What determines currency returns when investors across the world want to reduce their risk exposure at the same time? Most investors would agree that there are episodes – referred to in the financial press as risk-off episodes – when risky positions are cut across asset classes, as if there were a

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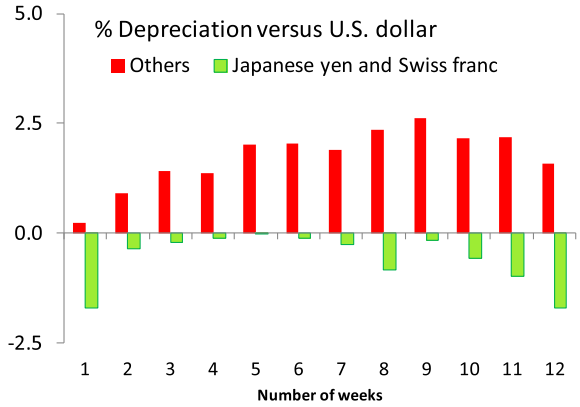

Fig. 1. FX spot returns at different horizons, average of 8 risk-off episodes. Note: Others is the equally-weighted average USD return on the currencies of Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Egypt, Euro area, Hungary, India, Indonesia, Israel, Republic of Korea, Malaysia, Morocco, Mexico, New Zealand, Norway, Peru, Philippines, Poland, Romania, Russian Federation, Singapore, South Africa, Sweden, Thailand, Turkey, Ukraine, United Kingdom and Venezuela. We define the start of a risk-off episode when the VIX moves 10 percentage points above its 60-day backward-looking moving average.
Source: Bloomberg and authors' calculations

rise in risk aversion globally. As such, risk-off episodes undermine the benefits of diversification within and across asset classes.

In this paper, we identify risk-off episodes based on the VIX, a measure of U.S. equity market volatility that is widely-used as a proxy for global risk aversion.[1] The VIX has several desirable properties for our analysis. First, it can be measured at a high frequency and in real time, so tracking the index can help to identify the onset of risk-off episodes. Second, since the VIX is derived from options prices on the S&P 500, there is no immediate link with FX markets. Finally, risk-off episodes derived from this measure correspond to our priors about disruptive market events in the last two decades.

Using this gauge for risk-off events, we first note that currency markets exhibit recurrent patterns during risk-off episodes, as the Japanese yen, Swiss franc, and U.S. dollar (USD) tend to appreciate against other G-10 and emerging market currencies, be it 1-week or 12-weeks after the start of a risk-off episode (Fig. 1).

In particular, returns of emerging markets (EM) currencies vis-à-vis the USD exhibit a high degree of correlation during and across these episodes. In this paper we show that these recurrent patterns of FX returns in risk-off episodes can be identified by simple correlations, as the cross section of spot returns against the USD is positively correlated across episodes, but also by Vector Auto Regressions (VARs).

We also find that the cross-section behavior of bilateral exchange rates with respect to the USD can be linked to information on policy interest rates and balance of payments dynamics available *prior* to the risk-off episode. The predictability of spot returns conditional on entering a risk-off episode suggests that two non-exclusive mechanisms may be at play. Investors may reassess the riskiness of each currency in light of a changing global environment (new information) or reprice risky assets in general (new price of risk).

Our research shows that lower policy rates, stronger current account balances, and stronger net foreign asset or reserve asset positions are factors related to smaller risk-off depreciations or larger appreciations. Market characteristics also help to explain FX performance during risk-off episodes,

[1] The VIX is derived from options prices on the S&P 500 index, and informs us about volatility and risk pricing in the US equity market. The VIX is often given a broader interpretation, as it is highly correlated with broader measures of financial stress (such as the Financial Stress Index developed by the Federal Reserve Bank of St. Louis) and with bond market indicators, including spreads on sovereign bonds of emerging market countries.