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# Can dual-currency sovereign CDS predict exchange rate returns?

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ABSTRACT

This paper examines both the time-series and cross-sectional variation in the difference between US dollar and Euro denominated sovereign CDS spreads for a group of Eurozone countries. We find that the spread difference between dual-currency sovereign CDS significantly affects the bilateral exchange rate returns. In addition, the difference could predict the cumulative exchange rate returns up to 10 days. The results strongly suggest that the difference contains important information for the exchange rate dynamics at various phases of the crisis.



## 1. Introduction

The recent Eurozone debt crisis has severely affected the sovereign debt and derivatives markets. The sovereign credit default swap (CDS) spread, representing the default risk of the underlying country, has rapidly widened since the debt woes have been messier, especially in the PIIGS (Portugal, Ireland, Italy, Greece, and Spain) countries. This paper provides an entirely new perspective to examine difference between dual-currency sovereign CDS spreads and its relation with foreign exchange rate returns. Since our sample is specifically in the Eurozone, we focus on the US dollar and Euro denominated CDS on the same sovereign entity and the exchange rates between the two currencies. We examine the sovereign CDS of both PIIGS and non-PIIGS countries in the Eurozone. In many ways, the comparison in these two groups shows the distinct features across countries with poor and sound financial conditions.

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Our paper is the first empirical study to investigate whether the differences between dual-currency denominated CDS spreads contain information about the bilateral exchange rate dynamics. The difference between US dollar and Euro denominated CDS spreads is almost zero before the global financial crisis. It has a significant jump after September 2008, and then has been consistently increasing till the end of our sample period. The suddenly widening difference between US dollar and Euro denominated sovereign CDS spreads in the crisis suggests that the information could imply the dynamics of the exchange rate returns and the Euro crash risk.

We find that the time series of the difference between US dollar and Euro denominated CDS spreads is closely related with the exchange rates. The larger the difference is, the cheaper the Euro is. The difference could be used to predict the contemporaneous exchange rate returns. By controlling market implied volatilities and funding liquidity, the difference still has a significant impact on the exchange rate returns. In addition, we find that the difference could predict the cumulative exchange rate returns up to 10 days. The predictive power weakens with the increasing time horizon.

In a panel analysis, we find that the difference between dual-currency sovereign CDS spreads has a significant impact on the exchange rate returns by controlling the macroeconomic variables for the whole sample, PIIGS countries, and non-PIIGS countries. In particular, the magnitude of the coefficient on the spread differential is bigger in the non-PIIGS countries than that in the PIIGS countries. The results are consistent with the fact that countries with strong economy in the Eurozone have more impact on the Euro to US dollar exchange rate returns. Furthermore, we find the relation becomes stronger in 2010 when the debt crisis is worsening.

The remainder of the paper is organized as follows. Section 2 discusses the literature and motivation. Section 3 describes the sovereign CDS, exchange rates and other related data. Section 4 presents the empirical results. Section 5 concludes.

## 2. Literature review and motivation

Prior studies have shown that it is difficult to predict foreign exchange rate returns. For example, Meese and Rogoff (1983) and Cheung et al. (2005) have found that exchange rates between major currencies are approximated by random walks. Although sometimes exchange rates are not exactly random walks, Cheung et al. (2005) show that they are not predictable, at least at long horizons.

A number of papers show that macroeconomic indicators are important for exchange rate. For example, Almeida et al. (1998) identify significant impacts of most macroeconomic announcements on the Deutsche Mark/US dollar exchange rates. Groen (2005) finds that the Euroexchange rates of Canada, Japan, and the US have a long-run link with monetary fundamentals. In addition, currency crash risk is proved to be linked with the macroeconomic conditions of the underlying sovereign entity. Eichengreen et al. (1996), Frankel and Rose (1996), and Kumar et al. (2003) employ macroeconomic variables to estimate the probability of currency crashes.

Macroeconomic variables usually reflect whether the country is able to defend its currency, such as foreign exchange reserves, GDP growth rate, inflation, industrial production and unemployment rates. They are also significantly related with the sovereign credit risk, as shown in Hilscher and Nosbusch (2010). The recent development of the sovereign CDS market provides a more accurate measure for sovereign credit risk, which could be linked with the foreign exchange rate markets. Carr and Wu (2007) examine the relation between sovereign CDS and currency options for Mexico and Brazil, and find that CDS spreads covary with both the currency option implied volatility and the slope of the implied volatility curve in moneyness. Chung and Hui (2011) find that the creditworthiness of countries with both weaker and sound fiscal positions are important determinants of the deep out-of-the-money Euro put option prices during the sovereign debt crisis of 2009–2010.

The sovereign CDS contracts could be written in different currencies. The difference between the US dollar and Euro denominated CDS spreads is usually close to zero before the global crisis of 2008. However, it becomes larger since the global financial crisis, and increases sharply when the European debt crisis worsens. Thus, it is interesting to examine the link between the sudden jump of the spread difference and the Euro/dollar exchange rate returns from 2008 to 2010. This has not been examined in the literature and this paper fills the gap.