FX Hedging of Bonds in Foreign Currency

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Abstract

In the literature, the risk reducing impact of currency hedging, measured as a reduction in the volatility of market values, is well documented, see e.g. Glen and Jorion (1993) or Campbell, Serfaty-De Medeiros and Viceria (2010). The instruments to hedge against currency fluctuations are predominantly short-term, regardless of the asset class to which the hedge is applied. If, however, the target function of an investor is the *hedging of cash flows* as opposed to *reducing variation in the market values*, the application of short-term hedging instruments induces serious imprecisions, most strikingly observable in the context of fixed income assets. These inaccuracies are all related to the changing market conditions over the course of one rolling period. This paper first draws up a list of four effects which arise when applying short-term FX instruments to bonds in foreign currency. The list encompasses an interest rate differential effect, a cross currency basis effect, a cash-flow relevant rolling effect and a delta market value effect. We propose long-term cross currency (XCCY) swaps as a possibility to eliminate the aforementioned effects. Second, on the example of a US Treasury portfolio, the paper empirically demonstrates the power of XCCY swaps as a hedging derivative. The application of long-term XCCY swaps as opposed to conventional short-term instruments results in an increased hedge effectiveness, measured as a reduction in the absolute portfolio variation and the relative variation versus a liability portfolio.

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