

# **A Quasi-Bounded Model for Swiss Franc's One-Sided Target Zone During 2011-2015**

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July 2015

## **Summary**

On 6 September 2011, the Swiss National Bank (SNB) imposed a ceiling on the value of the Swiss franc of CHF 1.2 per euro. Following continuous weakness of the euro area economy, this exchange rate limit was eventually abandoned on 15 January 2015. This paper proposes a simple and analytically tractable one-sided target-zone model in which the strong-side limit is quasi-bounded, and applies the model to the Swiss franc during the period between September 2011 and January 2015. In the model, the exchange rate can breach the strong-side limit under a restricted condition of the relationship between the parameters of the drift term and stochastic part of the process. The results of our empirical analysis using market data during 6 September 2011 – 14 January 2015 with a rolling one-year window suggests that the Swiss franc followed a quasi-bounded process. The estimated model parameters of the process adequately fit the data on the Swiss franc exchange rate. The negative interest rate differentials between the Swiss franc and euro implied by the model are consistent with actual market interest rate differentials.

The speed of the mean-reverting drift is estimated as an increasing function of foreign reserves. As foreign reserves increased, due to capital inflows into the Swiss franc, the speed of the mean-reverting drift increased, which pushed the exchange rate towards its long-term mean and away from the strong-side limit. While the empirical results show that the exchange rate was bounded below the strong-side limit during most of the period as indicated by its dynamics, the condition for breaching the limit was met in November 2014 using only information until that point, i.e., about two months before abandoning the limit. The dynamics of the exchange rate suggest an erosion of the credibility of the target zone.