

# **A Quasi-Bounded Target Zone Model – Theory and Application to Hong Kong Dollar**

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## **Summary**

It is often argued in the economic literature that for a target zone to be credible, an economy's exchange rate should exhibit strong mean-reversion. While the Hong Kong dollar (HKD) under the Linked Exchange Rate System (LERS) is perceived to have a high degree of credibility in financial markets, the empirical evidence on whether the HKD shows mean reversion is mixed. This paper proposes a quasi-bounded process for the exchange rate in a target zone, consistent with a fully credible exchange rate band in which the exchange rate cannot breach the strong-side limit while the weak-side limit is only accessible under restricted conditions governing the relationship between the parameters of the drift term and stochastic part of the process.

The estimated model parameters adequately fit the data on the HKD exchange rate in the convertibility zone between May 2005 and October 2012. When the HKD exchange rate is “well within” the target zone, market participants do not feel particularly compelled or encouraged to pull the exchange rate towards the central parity. However, when the exchange rate moves closer to its upper and lower boundary, a stopping/reversion effect occurs to limit movements or bring the exchange rate back towards its mean. These forces do not necessarily operate in or around the middle of the zone, therefore, relatively large movements of the exchange rate can happen so long as the exchange rate is comfortably within the zone.

Our empirical results suggest a positive relationship between the speed of mean reversion and capital flows. When the Monetary Base increases due to capital inflows into the HKD, the speed of the mean-reverting drift increases and the exchange rate is pushed back towards its long-term mean. The results suggest a certain degree of robustness in the LERS.