

# **Are Government Bond Yields Bounded or Quasi-bounded at the Zero? – Credibility of Central Banks' Commitments**

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## **Summary**

This paper develops a model based on a target-zone approach in which the dynamics of government bond yields follow a quasi-bounded process, such that the zero lower bound (ZLB) can be breached if the probability leakage condition of the dynamics is met. A one-sided U-shaped bond yield distribution illustrates accumulation of probability at the ZLB. Allowing the expected return and variance of the market's return proportional to the square of the state variable governing changes in production and investment opportunities over time suggests the state variable following an asymmetric mean-reverting process with strong counteracting force at the ZLB representing the credibility of the bound committed by a central bank. Empirical calibrations of the proposed process for the US and French government bond yields show that the process can adequately describe their dynamics. While the yields were bounded above the ZLB during most of the time, as indicated by their dynamics, the conditions for breaching the bound were met in January 2013 for the French government bond and March 2020 for the US Treasury using only information until those points. The economic and financial condition uncertainties are negatively co-integrated with the mean reversion in the dynamics, suggesting increased likelihood of the yield breaching the ZLB and erosion of the credibility of the bound amid higher uncertainties.