

International finance
Problem set 4

1. Consider a fixed exchange regime not perfectly credible. Assume zero risk and liquidity premium. Work out the interest rate differential (expressed on an yearly basis) consistent with the present survival of the exchange rate regime if
 - (a) The exchange rate is expected to depreciate by 10% with a 10% probability over the next year.
 - (b) The exchange rate is expected to depreciate by 10% with a 10% probability over the next month.
 - (c) The exchange rate is expected to depreciate by 10% with a 10% probability between today and tomorrow.

Derive a general relationship for the annualized interest rate differential, the expected depreciation between time t and $t + \tau$, with τ measured in months and the relevant maturity τ .

2. Consider a system of exchange rate bands such that the exchange rate can fluctuate freely provided it stays within a $\pm 2.5\%$ band centered around some central parity \bar{e} (this was how the European Exchange Rate Mechanism worked before its collapse). On the other hand, central banks intervene to defend the band whenever currency tends to depreciate/appreciate in excess of 2.5% against their central parity. Svensson (1990) has shown that within such small bands the foreign exchange risk premium should be small even allowing for the probability of depreciation (assume away liquidity premia). Suppose the forward premium of the French Franc against the Deutsche Marke is 7%? Can you use the forward premium as a test of the credibility of the exchange rate band between the two currencies¹ at different maturities (hint: use your results from point 1)? How?

¹The idea for this test and its implementation can be found in a paper by Svensson at <http://papers.nber.org/papers/w3394.pdf>.