Carry-trade and transition

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Outline

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- There are three factors that could encourage a reversal
  - US monetary policy
  - International risk aversion
  - International liquidity
- This research seeks to assess their relative importance and understand more about how financial instability evolves.

Literature

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Renewed interest, particularly after May 2013

- Ahmed (2014) Panel student of Gross and Net capital flows
- Baele et al. (2014) Look at causes of Flight-to-Safety
- Ceruttie et al. (2014) Measure global liquidity

The carry-trade

Attempts to take advantage of the breakdown in uncovered interest parity

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The carry-trade

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$$z_{t+1} \equiv (i^* - i) - \Delta s_{t+1} \quad (1)$$

Where z_{t+1} are the profits from the carry trade, $i^* - i$ is the interest rate differential (overseas less home) and Δs_{t+1} is the change in the exchange rate.

Hidden Markov Chain

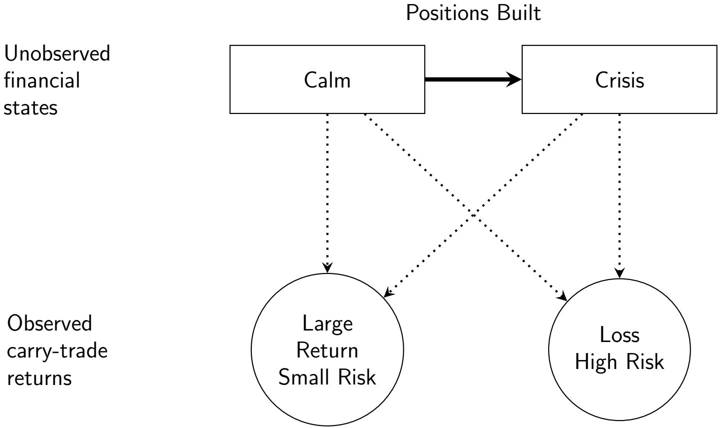

Figure: Two-Regime Hidden Markov Model (HMM)

Three components of HMM

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Where there are n states or regimes; y_t are the observed carry-trade returns; and θ_{prior}, θ_{trans} and θ_{resp} are the parameters of the prior, transition and response models respectively.

Transition matrix

The transition matrix is

$$\begin{bmatrix} P(S_t = 1|S_{t-1} = 1), & P(S_t = 2|S_{t-1} = 1) \\ P(S_t = 1|S_{t-1} = 2), & P(S_t = 2|S_{t-1} = 2) \end{bmatrix}$$

For Hungary, it is

$$\begin{bmatrix} 0.88, & 0.12 \\ 0.04, & 0.96 \end{bmatrix}$$

Response

For the simple two-regime case, a linear response is modelled as

$$y_t = \beta_0 + \sum_{i=1}^{i=n} S_{i,t} + \varepsilon_t$$

For, Hungary Poland, Romania and Czech, there are the following results.

Regime		HUF	PLN	CZK	RON
Calm	Mean	1.0165	1.0173	1.0129	1.0150
	St-Dev	0.0519	0.0486	0.0542	0.0433
Crash	Mean	0.9905	0.9862	0.9963	0.9969
	S-Dev	0.1085	0.1026	0.0886	0.0878

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   - transition model $log(a_{ij}/a_{i1}) = \alpha_j + \beta_j z_t$

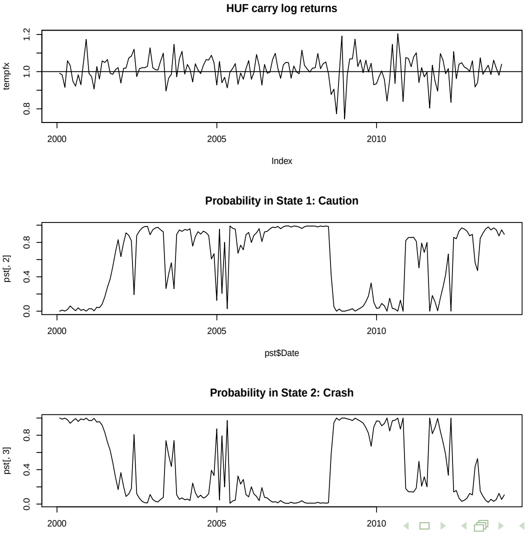
Transition and risk aversion

The VIX is scaled to have a mean of zero and S-dev of 1.

	-3sd	-1sd	Mean	+1sd	+2sd	+3sd
HUF	0.0020	0.0242	0.0807	0.2375	0.5249	0.7967
PLN	0.0004	0.0063	0.0242	0.0887	0.2766	0.6003
CZK	0.0000	0.0034	0.0717	0.6367	0.9755	0.9989
RON	0.0014	0.0131	0.0392	0.1119	0.2799	0.5453

The probability of switching to a crash once in a state of calm.

Calm and Crash probabilities



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- Common factors and common dates

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