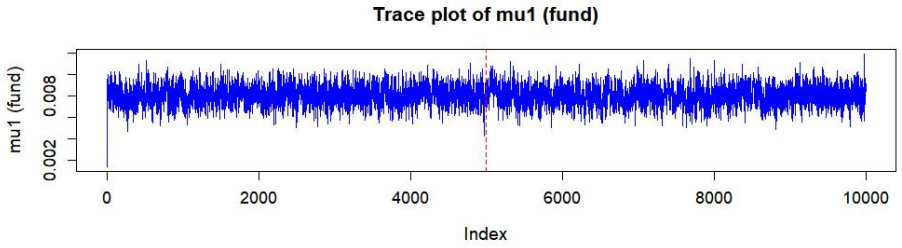
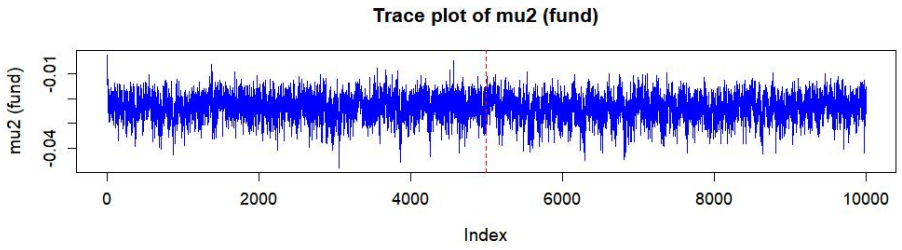
State = 2 (of 10 funds)

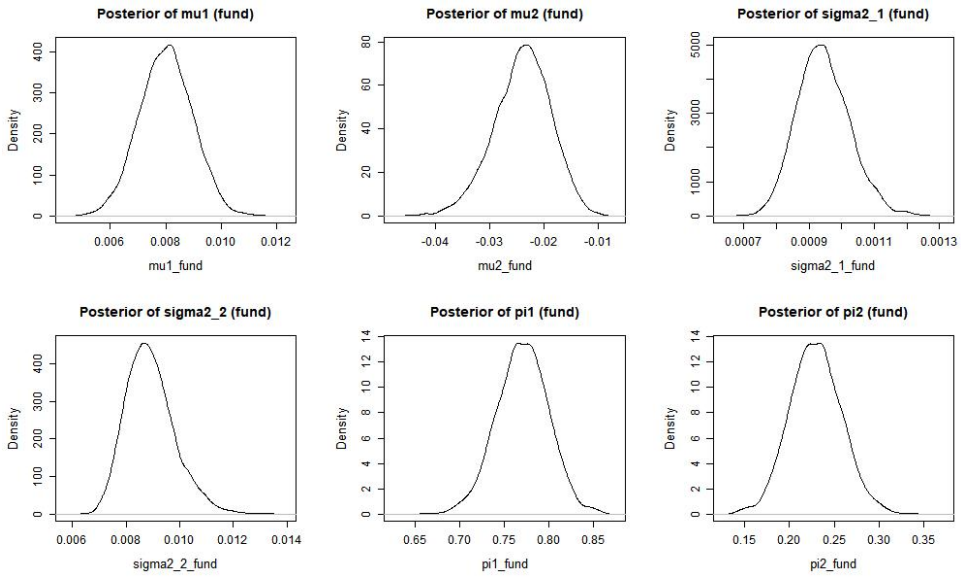
Summary table of parameters of the fund

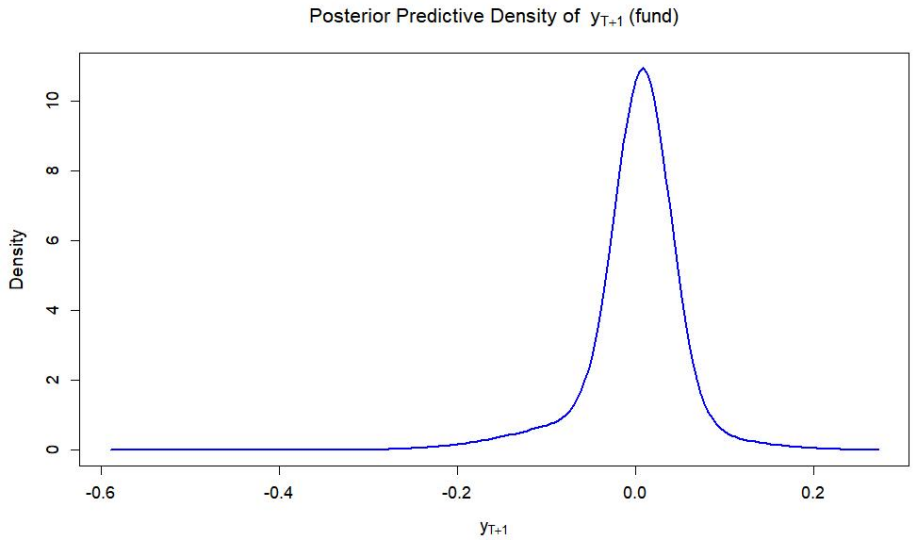
Parameter	Mean	Median	Std. Dev	95% Interval
mu_1_fund	0.00801	0.00802	0.00096	(0.0061, 0.0099)
mu_2_fund	-0.02393	-0.02362	0.00524	(-0.0350, -0.0145)
$sigma^2_1$_fund	0.00094	0.00094	0.00008	(8e-04, 0.0011)
$sigma^2_2$_fund	0.00892	0.00882	0.00093	(0.0074, 0.0110)
pi_1_fund	0.77059	0.77112	0.02902	(0.7120, 0.8260)
pi_2_fund	0.22941	0.22888	0.02902	(0.1740, 0.2880)



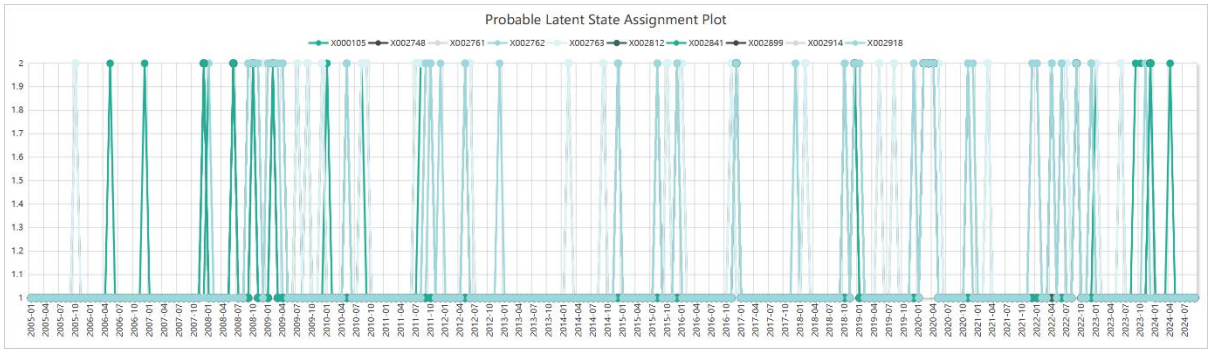


Posterior plots of parameters





Using latant state assignment logic to find out 10 funds' different states acorss time



Based on the above state conditions, we can have the table as follows:

Period	Notes from Data	Real-World Event
Late 2008-Early 2009	Red cells concentrated across most funds	**Global Financial Crisis** (Lehman collapse in Sept 2008, massive downturn in Q4 2008)
Mid 2011	Short wave of multiple state 2s	**European Debt Crisis**, US credit downgrade (S&P downgraded US from AAA in Aug 2011)
Early 2016	Noticeable red patch in Jan-Mar 2016	**Oil price crash**, China growth fears
Late 2018	Strong December concentration	**Fed rate hikes + US-China trade war escalation**, global equity correction
Mar-Apr 2020	All funds in state 2	**COVID-19 pandemic crash** (March 2020 market collapse)
2022 (esp. mid-late)	Longest and broadest red spread	**inflation surge**, aggressive Fed tightening, Russia-Ukraine war
2023-Q4	Several funds re-enter state 2	Ongoing recession fears, tech selloff, interest rate peak concerns