



Indian Rupee Market Intervention: Managing FX Volatility or Inducing Capital Inflows?

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Outline

- Capital inflows: trade-off between appreciation pressures and volatility.
- Indian data.



Risk and reward

- Carry return = FX return + interest rate differential
- $\text{Var}(\text{carry return}) = \text{Var}(\text{FX return}) + \text{VAR}(\text{interest diff}) + 2\text{Cov}(\text{FX return}, \text{interest differential})$



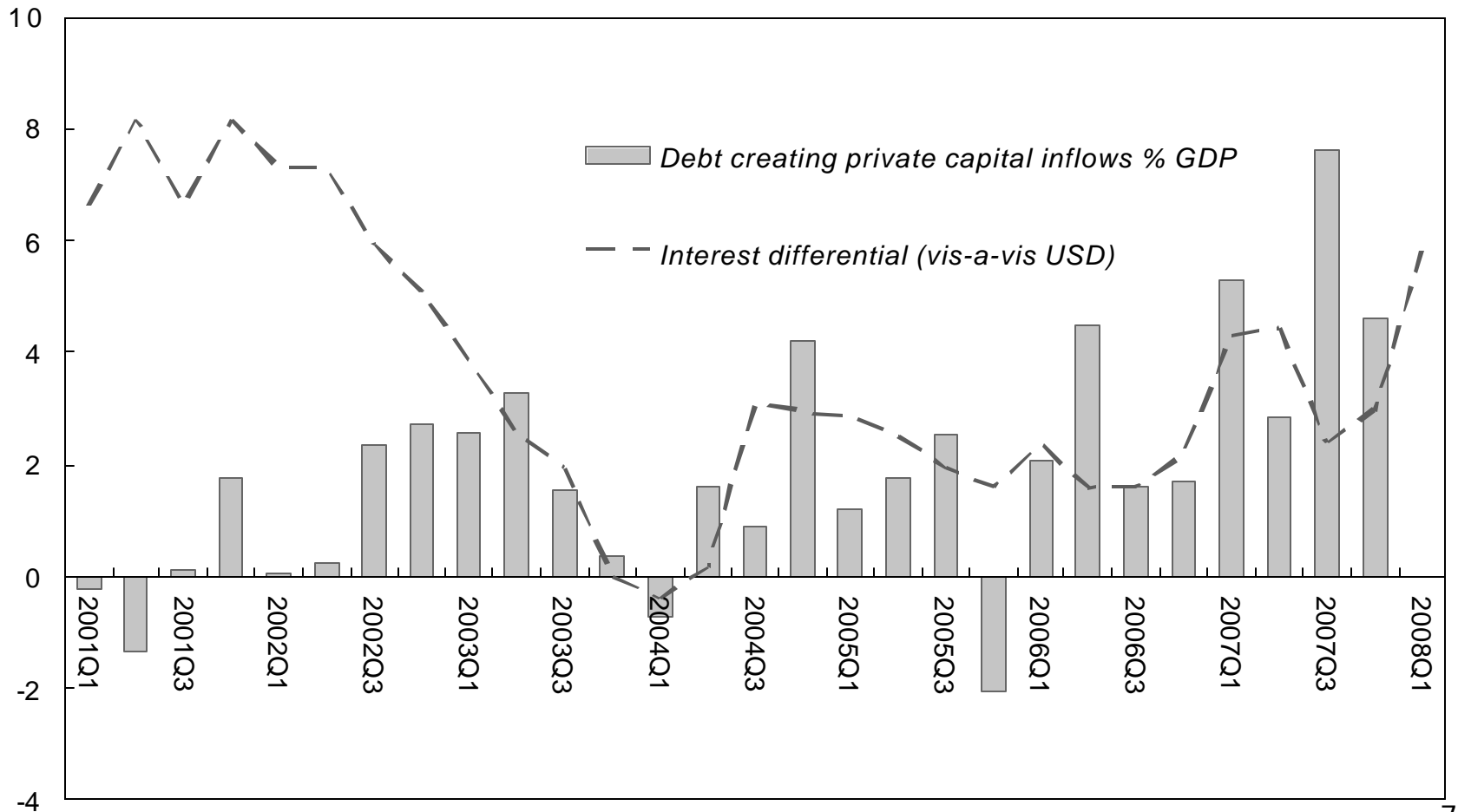
Reducing FX volatility can increase capital inflows.

- Investors care about risk-adjusted return (e.g. Sharpe ratio: return/risk; risk measured as standard deviation).
- Lower FX volatility raises Sharpe ratio by reducing risk.

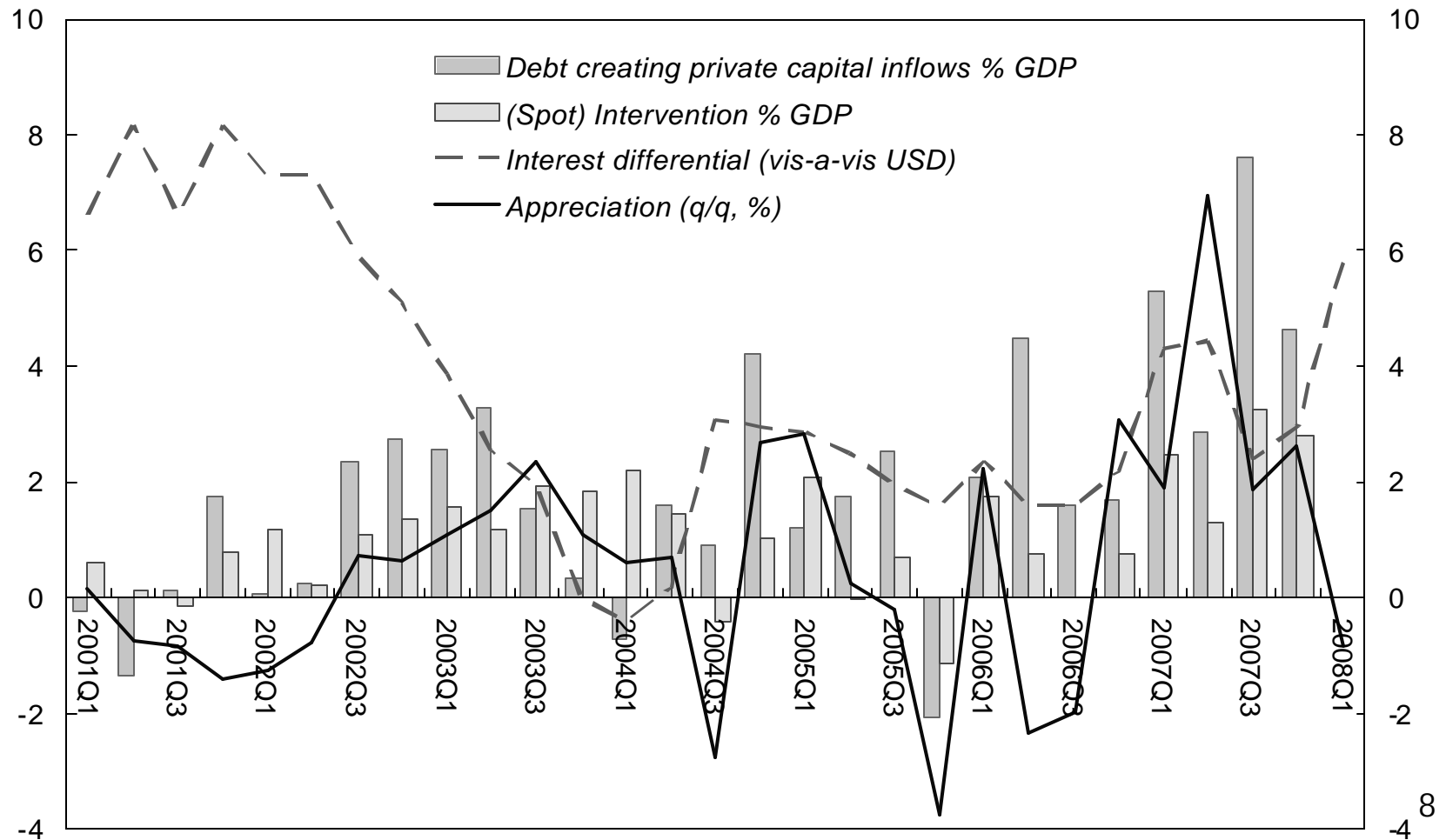
Capital inflows to EMs increased, including on account of interest differentials

- Net private capital inflows to EMs –
 - 2000: \$75 billion (1 percent of emerging market GDP)
 - 2007: \$600 billion (3½ percent of emerging market GDP)
 - Exceeded the peak in 1990's.
- To India-
 - 1.5 percent of GDP in FY 2001/02 to over 9 percent of GDP in FY 2007/08.

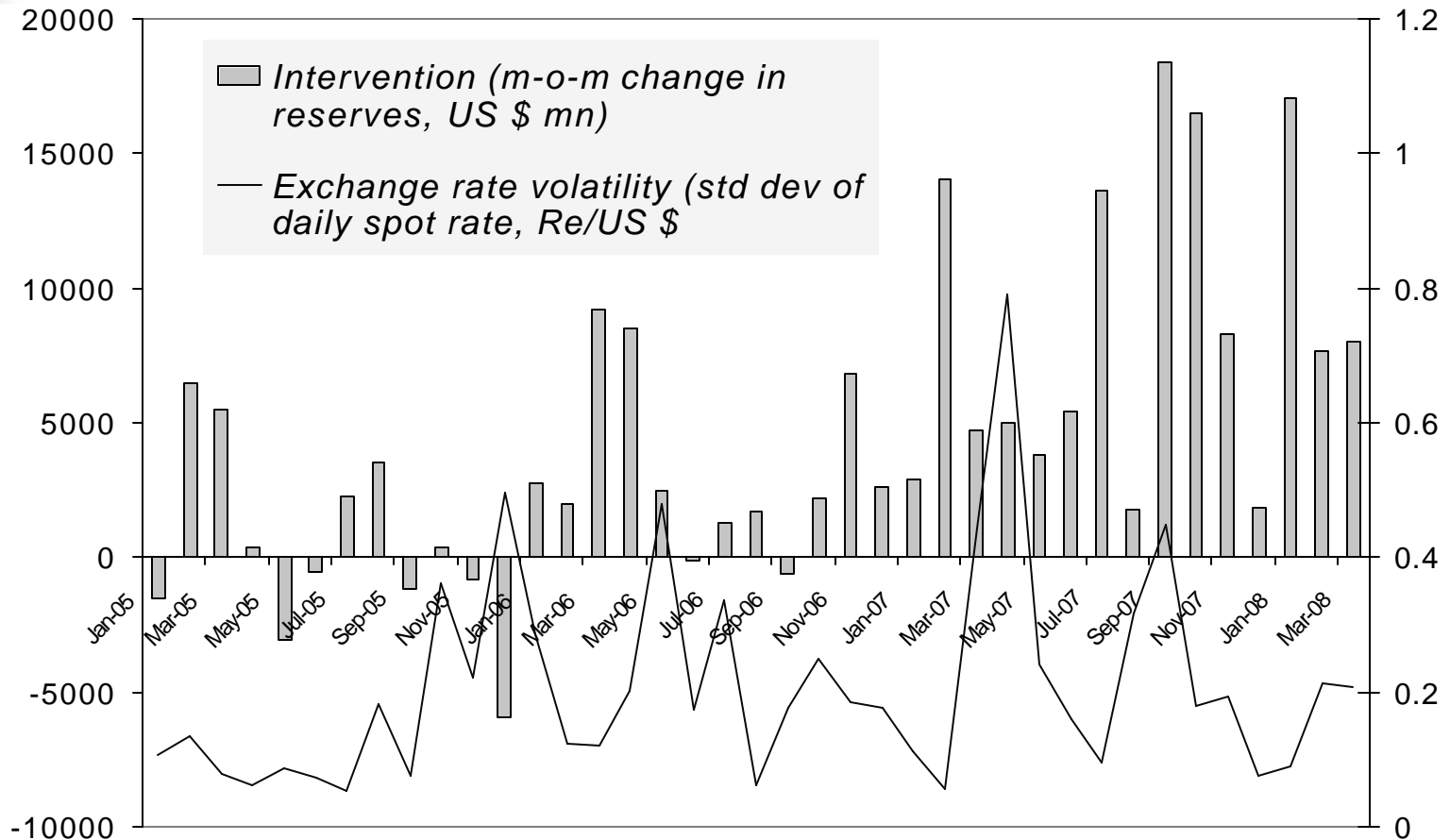
India: Debt creating inflows surged



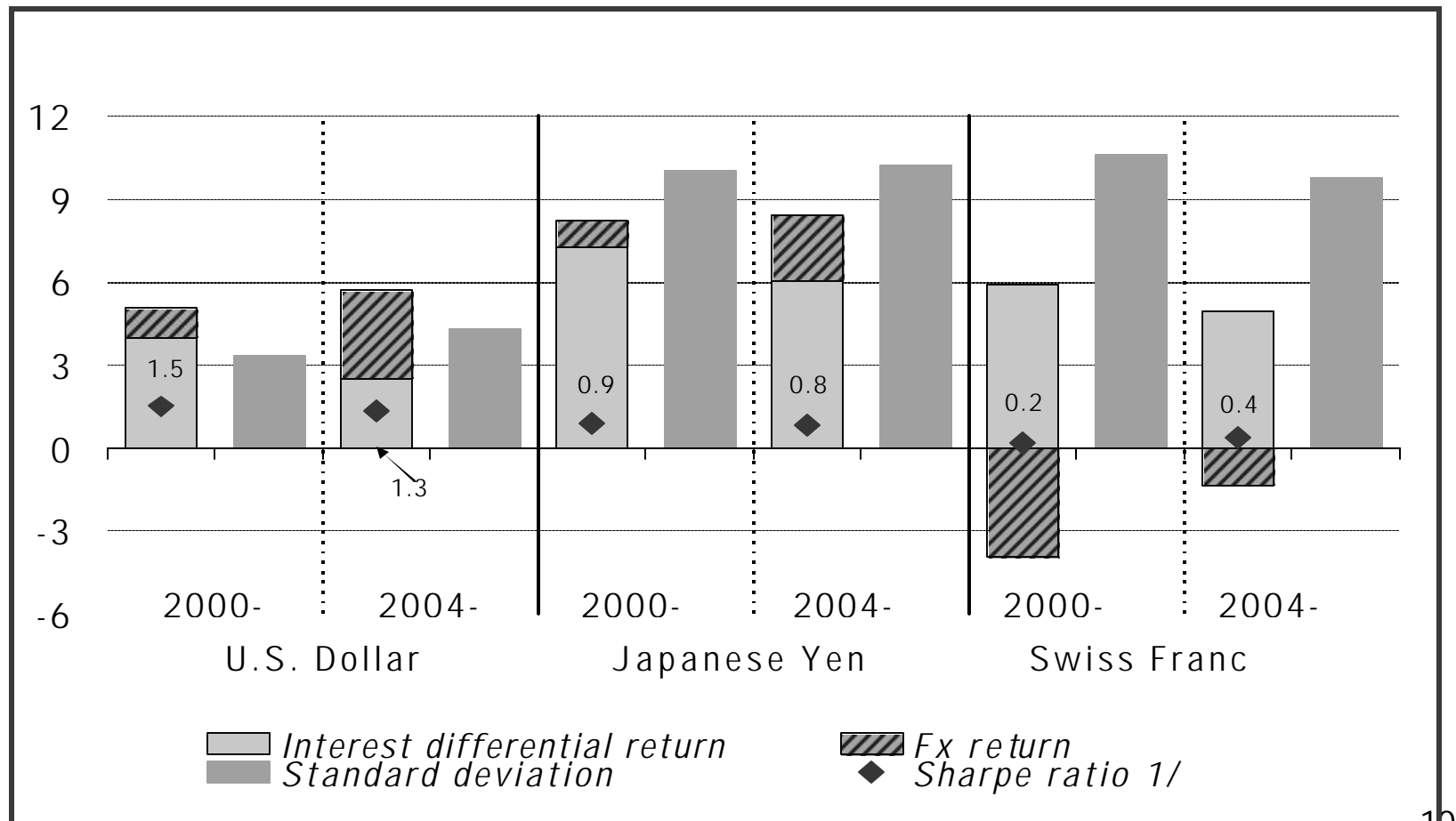
The inflows presented policy challenges: volatility & appreciation



Interventions have kept exchange rate volatility low



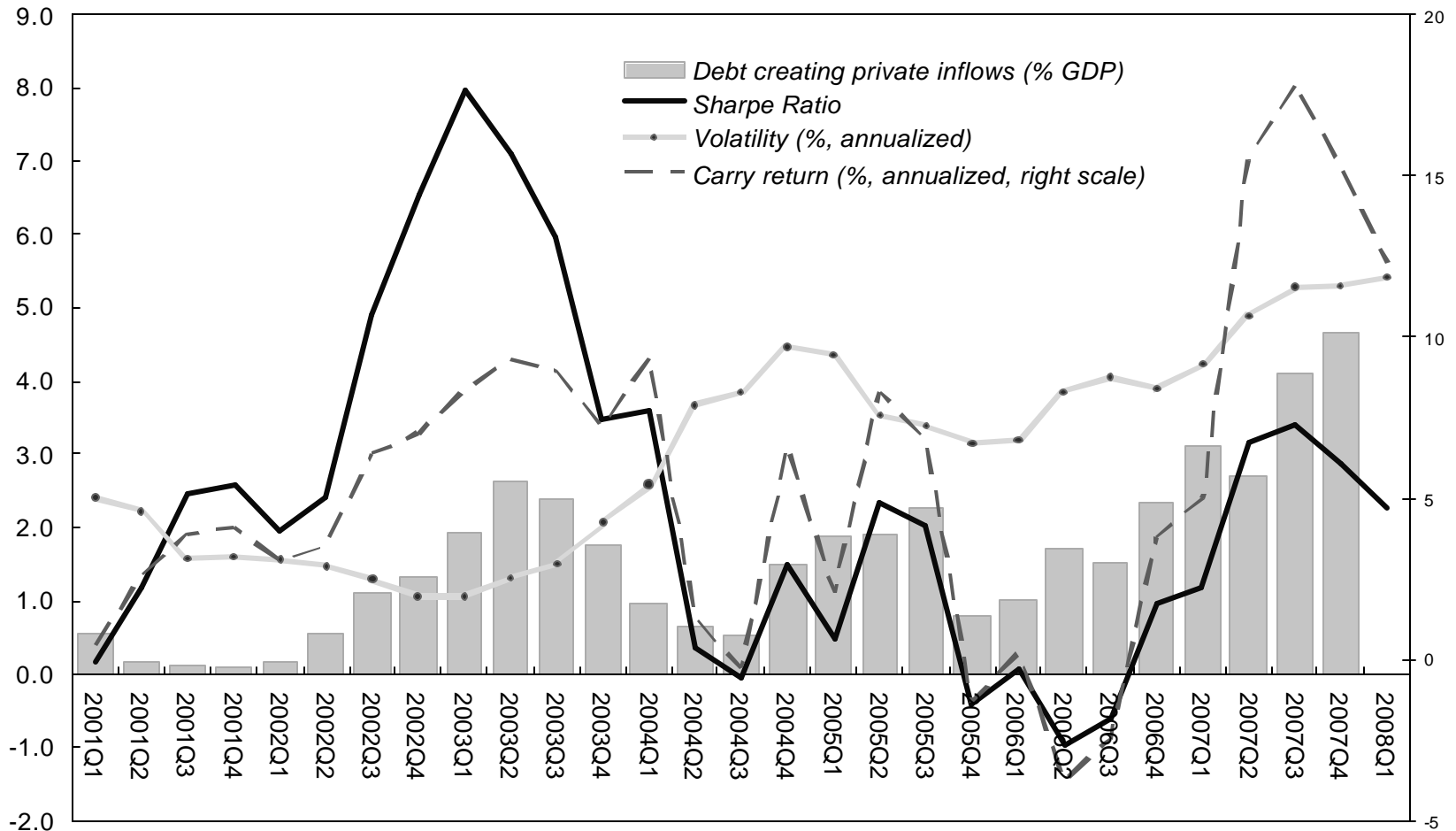
Risk-reward mix: mostly interest dif for returns and FX volatility for risk



Comparative Risk Adjusted Returns

	Equities		Carry Trade		
	MSCI World	MSCI India	Rup-USD	Aust. \$- JPY	Brz. real-JPY
(Jan 2000 - Apr. 2008)					
Return	0.64	19.66	5.1	11.31	18.99
Sharpe Ratio	0.04	0.71	1.5	0.86	1.05
(Jan 2004-Apr 2008)					
Return	8.63	33.76	5.7	11.61	30.39
Sharpe Ratio	0.77	1.24	1.33	0.89	1.87

I. Do carry trade inflows really increase when risk-adjusted return is high ?



II. Do carry trade inflows really increase when risk-adjusted return is high ?

Model	Dependent variable			
	Capital inflows		rupee appreciation	
	(1)	(2)	(3)	(4)
Sharpe ratio (t)	+		+(***)	
Sharpe ratio (t-1)	+(**)		+(***)	
Carry return (t)		+		+(***)
Carry return (t-1)		+		+(**)
Risk (t)		+(*)		+
Risk (t-1)		-		-

Conclusion: No Free Policy Lunch



- Investors care about risk-adjusted return, of which FX volatility is a major determinant.
- Lowering FX volatility can induce capital inflow from carry trades.
- FX market intervention that only reduces volatility is not cost-free !



Thanks !
