Investor Attention and FX Market Volatility

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PAY Attention

- Assumption in traditional asset pricing models: costless information acquisition.
- Attention is a scarce cognitive resource (Kahneman, 1973).

  $\Rightarrow$ Attention allocation before portfolio allocation

  $\Rightarrow$ Infrequent portfolio decisions and affect asset price dynamics (Huang & Liu (2007); Peng & Xiong (2006))
- This paper: tests how attention affects FX volatility

Attention and Volatility: Theory

- Rational expectation models (West (1998)): more information $\Rightarrow$ uncertainty $\downarrow$ $\Rightarrow$ volatility $\uparrow$
- Theory behind this paper: attention and market volatility (Andrei et al (2013))
  - Unobservable fundamental with Bayesian learning and time varying attention
  - $\uparrow$ attention $\Rightarrow$ volatility of expected fundamental $\uparrow$ and uncertainty $\downarrow$
  - Attention effect dominates the uncertainty effect
  - Investor attention drives market volatility, and the latter has to increase with the former.

Attention Proxies

- Traditional Proxies are indirect and passive
  - Media coverage, extreme price movements, advertising expenses, etc.
- Our proxy: Google Search Volume Index (SVI)
  - Search phrase: pairs of three-letter abbreviations (EUR/USD)
  - SVI: rescaled and seasonally adjusted
  - Sample period: weekly data from January 2004 to September 2011
- SVI Related papers: Momentum and reversal(Da et. al. (forthcoming)), stock market volatilities (Vlastakis & Markellos (2011); Dimpfl & Jank (2012)), trading volume, liquidity, future cash flows....

Contemporaneous Volatility and Attention

- We model attention effects on conditional volatility of FX returns by augmenting GARCH(1,1):

$$r_t = \alpha + \beta SVI_t + \epsilon_t \quad (1)$$

$$\sigma_t^2 = \exp(\lambda_0 + \lambda_1 SVI_t) + \gamma\sigma_{t-1}^2 + \delta\epsilon_{t-1}^2 \quad (2)$$

	usd_jpy	gbp_usd	usd_aud	eur_usd	eur_gbp	eur_jpy	gbp_jpy
Mean Equation							
SVI	-0.014***	-0.001	-0.006	-0.006	0.006*	-0.002	0.001
	(0.005)	(0.003)	(0.006)	(0.004)	(0.003)	(0.005)	(0.005)
Constant	-0.120	0.055	-0.249**	0.036	0.059	0.029	0.022
	(0.086)	(0.082)	(0.106)	(0.084)	(0.067)	(0.098)	(0.099)
Variance Equation							
SVI	0.017***	0.001	0.015**	0.016***	0.031***	0.027***	0.022***
	(0.005)	(0.009)	(0.006)	(0.003)	(0.003)	(0.007)	(0.007)
Constant	0.040	-2.065***	0.464	1.091***	0.204	-1.133**	-1.167**
	(0.601)	(0.624)	(0.302)	(0.178)	(0.290)	(0.531)	(0.463)
N	402	402	402	402	402	402	402

- Results are robust at various horizons, inclusion of lags of volatility, nonlinearity, and outliers

Causal Effects

	Monthly VAR Regressions						
	usd_jpy	gbp_usd	usd_aud	eur_usd	eur_gbp	eur_jpy	gbp_jpy
Volatility							
SVI_{t-1}	0.007***	0.004***	0.035***	0.003***	0.006***	0.006**	0.005
	(0.002)	(0.001)	(0.008)	(0.001)	(0.001)	(0.003)	(0.004)
SVI_{t-2}	-0.003	-0.002*	-0.025***	-0.001	-0.004***	0.001	0.000
	(0.002)	(0.001)	(0.008)	(0.001)	(0.001)	(0.003)	(0.004)
SVI							
$Volatility_{t-1}$	-8.333	2.774	-1.512	-6.654	18.806**	9.145**	-0.087
	(6.636)	(9.424)	(1.502)	(10.286)	(9.318)	(4.159)	(2.530)
$Volatility_{t-2}$	6.718	5.818	1.112	6.804	-21.602**	7.888*	2.417
	(5.935)	(9.194)	(1.345)	(9.673)	(8.816)	(4.266)	(2.511)
N	89	89	89	89	89	89	89

Alternative explanations

- Our results sustain the following considerations:
  - Fundamental (Macroeconomic) Risk
  - Liquidity Risk
  - Investor Sentiment
  - Differences of Opinion
  - Crash Risk
  - Media coverage
  - Overconfidence