

Supplementary Information

The Biology of ‘Risk-On’. Decreasing Inflammatory and Stress Responses on a London Trading Floor

N. Z. Xie, L. Page, D. A. Granger, J. M. Coates

Bonds & Interest Rates						Equities			Commodity		FX
Europe				UK	US	Europe		US			
Bund	Bobl	Schatz	Euribor	Gilt	Notes	Stoxx	Dax	S&P	Gold	Oil	\$/€
32.2%	4.7%	3.0%	3.6%	11.8%	8.0%	16%	6.2%	5.0%	2.7%	4.1%	2.7%
43.5%				11.8%	8.0%	22.2%		5.0%	6.8%		2.7%
63.1%						27.4%			6.8%		2.7%

Future Contracts Legend. Bund: German 10yr bond. Bobl: German 5yr bond. Schatz: German 2yr bond. Euribor: Euro 3 month deposit rate. Gilt: UK 10yr bond. Notes: US 10yr bond. Stoxx: Eurostoxx equity index. Dax: German equity index. S&P: U.S. equity index.

The index of the markets traded was weighted by number of trades, consisting of 66.9% Bunds (32.2%/(32.2%+16%)) and 33.1% Eurostoxx (16%/(32.2%+16%))

Vector Autoregressive (VAR) models.

$$\begin{cases} Cortisol_t = \beta_{10} + \beta_{11}Cortisol_{t-1} + \beta_{12}IL1\beta_{t-1} + \beta_{13}IL6_{t-1} + \beta_{14}IL8_{t-1} + \beta_{15}TNF\alpha_{t-1} + \varepsilon_{1t} \\ IL1\beta_t = \beta_{20} + \beta_{21}Cortisol_{t-1} + \beta_{22}IL1\beta_{t-1} + \beta_{23}IL6_{t-1} + \beta_{24}IL8_{t-1} + \beta_{25}TNF\alpha_{t-1} + \varepsilon_{2t} \\ IL6_t = \beta_{30} + \beta_{31}Cortisol_{t-1} + \beta_{32}IL1\beta_{t-1} + \beta_{33}IL6_{t-1} + \beta_{34}IL8_{t-1} + \beta_{35}TNF\alpha_{t-1} + \varepsilon_{3t} \\ IL8_t = \beta_{40} + \beta_{41}Cortisol_{t-1} + \beta_{42}IL1\beta_{t-1} + \beta_{43}IL6_{t-1} + \beta_{44}IL8_{t-1} + \beta_{45}TNF\alpha_{t-1} + \varepsilon_{4t} \\ TNF\alpha_t = \beta_{50} + \beta_{51}Cortisol_{t-1} + \beta_{52}IL1\beta_{t-1} + \beta_{53}IL6_{t-1} + \beta_{54}IL8_{t-1} + \beta_{55}TNF\alpha_{t-1} + \varepsilon_{5t} \end{cases}$$

Table 2: VAR Model Estimation Results:

	(1)	(2)	(3)	(4)	(5)
	<i>Cortisol_t</i>	<i>IL1β_t</i>	<i>IL6_t</i>	<i>IL8_t</i>	<i>TNFα_t</i>
<i>Cortisol_{t-1}</i>	-0.364* (-1.78)	-0.108 (-0.73)	0.065 (0.50)	0.200 (1.45)	0.123 (0.89)
<i>IL1β_{t-1}</i>	0.367 (1.02)	-0.162 (-0.63)	-0.752*** (-3.29)	-0.635*** (-2.63)	-0.783*** (-3.23)
<i>IL6_{t-1}</i>	0.825** (2.01)	0.218 (0.73)	0.010 (0.04)	-0.084 (-0.31)	-0.081 (-0.29)
<i>IL8_{t-1}</i>	0.187 (0.35)	0.164 (0.42)	0.613* (1.79)	0.534 (1.47)	0.659* (1.81)
<i>TNFα_{t-1}</i>	-0.514 (-1.04)	-0.145 (-0.41)	0.149 (0.47)	-0.091 (-0.27)	0.003 (0.01)
Constant	5.814* (1.86)	6.383*** (2.82)	1.778 (0.89)	5.955*** (2.83)	2.181 (1.03)

$N = 29$. z statistics in parentheses; *: $p < 0.1$, **: $p < 0.05$, *** $p < 0.01$.

Granger causality Wald test results:

Table 3: Granger causality Wald test results

Equation	Excluded	χ^2	Degree of Freedom	p value
Cortisol	IL-1 β	1.048	1	0.306
Cortisol ←	IL-6	4.058	1	0.044
Cortisol	IL-8	0.120	1	0.729
Cortisol	TNF- α	1.084	1	0.298
Cortisol	All	11.603	4	0.021
IL-1 β	Cortisol	0.532	1	0.466
IL-1 β	IL-6	0.539	1	0.463
IL-1 β	IL-8	0.178	1	0.673
IL-1 β	TNF- α	0.164	1	0.685
IL-1 β	All	3.303	4	0.508
IL-6	Cortisol	0.253	1	0.615
IL-6 ←	IL-1 β	10.850	1	0.001
IL-6	IL-8	3.195	1	0.074
IL-6	TNF- α	0.225	1	0.635
IL-6	All	16.054	4	0.003
IL-8	Cortisol	2.116	1	0.146
IL-8 ←	IL-1 β	6.925	1	0.009
IL-8	IL-6	0.094	1	0.759
IL-8	TNF- α	0.075	1	0.784
IL-8	All	7.647	4	0.105
TNF- α	Cortisol	0.792	1	0.373
TNF- α ←	IL-1 β	10.429	1	0.001
TNF- α	IL-6	0.085	1	0.771
TNF- α	IL-8	3.280	1	0.070
TNF- α	All	12.820	4	0.012

Note: ← represents a significant test results ($p < 0.05$).