

## The Morning Email: Correlations & R-Squared

### Table of Contents

<b>Pg 1</b>	US Treasuries
<b>Pg 2</b>	US Treasuries & US Treasury Futures
<b>Pg 3</b>	US Treasuries, US Treasury Futures, & German Futures
<b>Pg 4</b>	Energy
<b>Pg 5</b>	Notes
<b>Pg 6</b>	US Treasury Basis
<b>Pg 7</b>	US Treasury Spreads
<b>Pg 8</b>	

One contract may be correlating with another but does that mean there's causation? Is one causing the other?

That's what the R-Squared is for. Read R-Squared as follows: let's say, CLA and DJIA have an R-Squared of 0.44. That means there's a 44% chance that one is causing the market movement of the other.

You will always see a positive number for the R-Squared. If a correlation is a (negative) number, for example, (87.9) that means the two commodities are mirroring each other, not correlating. For example, today (which is 06/06/2007) the RBA and DJIA have a (87.9)% correlation. The R-Squared is 0.77. Therefore the two instruments are mirroring each other 88% of the time, and there's a 77% chance that one is causing the other.

Want something added? Let me know: [jgoulding@ghco.com](mailto:jgoulding@ghco.com)

**Disclaimer:** All information within this newsletter is meant for internal use at GH Trader's LLC, only. All information has been recorded to the best of my ability. This material is based upon information that I consider reliable, but I do not represent that it is accurate or complete.

Symbol	Daily Correlations US Cash Treasuries (Yield)				Daily Correlations US Bonds/Notes (CBOT)				
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB	
5YR BASIS	52.7	60.2	50.8	75.7	(44.3)	(56.8)	(59.4)	(61.4)	q
10YR BASIS	31.7	29.2	21.4	28.4	(48.1)	(48.1)	(54.1)	(45.5)	6
30YR BASIS	(10.3)	(16.1)	(15.0)	(47.3)	(7.4)	0.7	3.1	10.9	2
2/10	(95.7)	(90.9)	(85.1)	(69.4)	93.9	93.7	88.0	77.4	9
2/5	(35.0)	(18.5)	(17.5)	9.6	41.8	28.7	21.3	1.9	45
2/30	(90.5)	(83.9)	(81.0)	(51.2)	90.5	87.4	79.5	66.7	47
5/10	(95.7)	(97.0)	(90.8)	(83.8)	90.9	96.0	92.6	88.3	46
5/30	(94.0)	(91.4)	(88.4)	(62.2)	91.9	92.3	85.5	76.6	48
10/30	(49.5)	(41.7)	(45.2)	1.0	53.0	45.3	36.0	23.4	49
TUF1^	62.0	69.3	62.4	78.4	(58.8)	(70.5)	(75.1)	(77.4)	44

^ See notes page

Symbol	Daily R-Squared US Cash Treasuries (Yield)				Daily R-Squared US Bonds/Notes (CBOT)				
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB	
5YR BASIS	0.28	0.36	0.26	0.57	0.20	0.32	0.35	0.38	
10YR BASIS	0.10	0.09	0.05	0.08	0.23	0.23	0.29	0.21	
30YR BASIS	0.01	0.03	0.02	0.22	0.01	0.00	0.00	0.01	
2/10	0.92	0.83	0.72	0.48	0.88	0.88	0.78	0.60	
2/5	0.12	0.03	0.03	0.01	0.17	0.08	0.05	0.00	
2/30	0.82	0.70	0.66	0.26	0.82	0.76	0.63	0.44	
5/10	0.92	0.94	0.82	0.70	0.83	0.92	0.86	0.78	
5/30	0.88	0.83	0.78	0.39	0.85	0.85	0.73	0.59	
10/30	0.25	0.17	0.20	0.00	0.28	0.21	0.13	0.05	
TUF1^	0.38	0.48	0.39	0.61	0.35	0.50	0.56	0.60	

^ See notes page

Symbol	Daily Correlations US Cash Treasuries (Yield)				Daily Correlations US Bonds/Notes (CBOT)			
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB
2yr Yield	100.0	98.5	96.7	82.8	(96.8)	(97.7)	(94.6)	(89.3)
5yr Yield	98.5	100.0	98.3	88.6	(94.0)	(97.3)	(95.4)	(93.4)
10yr Yield	96.7	98.3	100.0	88.7	(92.6)	(94.3)	(93.7)	(93.4)
30yr Yield	82.8	88.6	88.7	100.0	(76.4)	(82.3)	(86.4)	(92.7)
ZT	(96.8)	(94.0)	(92.6)	(76.4)	100.0	98.2	96.6	89.7
ZF	(97.7)	(97.3)	(94.3)	(82.3)	98.2	100.0	98.6	93.1
ZN	(94.6)	(95.4)	(93.7)	(86.4)	96.6	98.6	100.0	96.6
ZB	(89.3)	(93.4)	(93.4)	(92.7)	89.7	93.1	96.6	100.0
emini SP	27.0	21.1	28.7	(12.1)	(30.6)	(20.0)	(12.1)	(6.1)
Dow Futures	36.8	30.5	38.1	(1.3)	(39.6)	(29.0)	(21.3)	(13.9)
USDJPY	67.7	66.5	71.5	52.0	(64.0)	(58.4)	(53.3)	(52.6)
EURUSD	20.1	16.7	11.4	(8.3)	(6.3)	(9.8)	2.7	10.1
EURJPY	66.4	63.6	65.8	41.1	(58.3)	(54.4)	(45.2)	(41.3)
Crude	(66.5)	(72.3)	(65.1)	(82.6)	66.1	74.6	79.4	81.7

Symbol	Daily R-Squared US Cash Treasuries (Yield)				Daily R-Squared US Bonds/Notes (CBOT)			
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB
2yr Yield		0.97	0.94	0.69	0.94	0.95	0.89	0.80
5yr Yield	0.97		0.97	0.79	0.88	0.95	0.91	0.87
10yr Yield	0.94	0.97		0.79	0.86	0.89	0.88	0.87
30yr Yield	0.69	0.79	0.79		0.58	0.68	0.75	0.86
ZT	0.94	0.88	0.86	0.58		0.96	0.93	0.80
ZF	0.95	0.95	0.89	0.68	0.96		0.97	0.87
ZN	0.89	0.91	0.88	0.75	0.93	0.97		0.93
ZB	0.80	0.87	0.87	0.86	0.80	0.87	0.93	
emini SP	0.07	0.04	0.08	0.01	0.09	0.04	0.01	0.00
Dow Futures	0.14	0.09	0.15	0.00	0.16	0.08	0.05	0.02
USDJPY	0.46	0.44	0.51	0.27	0.41	0.34	0.28	0.28
EURUSD	0.04	0.03	0.01	0.01	0.00	0.01	0.00	0.01
EURJPY	0.44	0.41	0.43	0.17	0.34	0.30	0.20	0.17
Crude	0.44	0.52	0.42	0.68	0.44	0.56	0.63	0.67



SYM NAME	Symbol	Daily Correlations US Cash Treasuries			Daily Correlations US Bonds/Notes (CBOT)			Symbol	SYM NAME
		2yr	5yr	10yr	ZT	ZF	ZN		
Schatz(2Y)	DGU7	(60.66)	(59.02)	(69.47)	66.74	57.96	59.11	DGU7	Schatz(2Y)
Bobl(5Y)	DLU7	(50.12)	(50.69)	(62.17)	57.31	49.15	55.64	DLU7	Bobl(5Y)
Bund(10Y)	DBU7	(66.00)	(68.35)	(77.40)	69.26	64.30	69.52	DBU7	Bund(10Y)

SYM NAME	Symbol	Daily R-Squared US Cash Treasuries			Daily R-Squared US Bonds/Notes (CBOT)			Symbol	SYM NAME
		2yr	5yr	10yr	ZT	ZF	ZN		
Schatz(2Y)	DGU7	0.37	0.35	0.48	0.97	0.34	0.35	DGU7	Schatz(2Y)
Bobl(5Y)	DLU7	0.25	0.26	0.39	0.33	0.24	0.31	DLU7	Bobl(5Y)
Bund(10Y)	DBU7	0.44	0.47	0.60	0.48	0.41	0.48	DBU7	Bund(10Y)

Daily Correlations					
Symbol	CLA	HOA	RBA	NGA	Sym Name
CLA	100.0	97.3	83.1	(21.4)	Crude Oil
HOA	97.3	100.0	72.8	(18.6)	Heating Oil
RBA	83.1	72.8	100.0	(25.6)	unleaded Gas
NGA	(21.4)	(18.6)	(25.6)	100.0	Nat Gas
DJIA	39.5	40.2	45.1	(35.7)	Dow Cash
SPC5	51.1	52.4	48.4	(29.4)	S&P 500 Cash
EURUSD	28.9	47.2	4.2	(15.3)	€ / \$
EURJPY	(1.0)	5.6	13.2	(31.5)	€ / ¥
USDJPY	(14.3)	(14.8)	13.7	(27.3)	\$ / ¥

Daily R-Squared					
Symbol	CLA	HOA	RBA	NGA	Sym Name
CLA		0.95	0.69	0.05	Crude Oil
HOA	0.95		0.53	0.03	Heating Oil
RBA	0.69	0.53		0.07	unleaded Gas
NGA	0.05	0.03	0.07		Nat Gas
DJIA	0.16	0.16	0.20	0.13	Dow Cash
SPC5	0.26	0.27	0.23	0.09	S&P 500 Cash
EURUSD	0.08	0.22	0.00	0.02	€ / \$
EURJPY	0.00	0.00	0.02	0.10	€ / ¥
USDJPY	0.02	0.02	0.02	0.07	\$ / ¥

1) ALL Correlations are based on 10 day historical  
 2) CQG quotes prices in 32nds. That means you won't see ""32" on the end of my equations. I don't need to multiply by 32 to see the correct quote.

**TUF1** = Cash2yr Yield - 5 Year Futures  
 CQG Equation =  $\text{SHARESCALE}(\text{BUSP02}-(\text{FVA?}*.5), \text{INTEGER1}) * 32$ ? Where FVA? is the 5yr electronic lead month futures contract.

**FYT1** =  $(\text{FV} * 1.5) - \text{TY}$   
 CQG Equation =  $((\text{FVA?} * 1.5) - \text{TYA?})$   
 Where: FV = 5 yr electronic futures; TY = 10 yr electronic futures

**FYT2** =  $(5 \text{ yr cash} - (\text{TY} * .7))$   
 CQG Equation =  $(\text{BUS05P} - (\text{TYA} * .7))$   
 Where: 5 yr cash = OTR; TY = 10 yr electronic futures

**NOB1** =  $(10 \text{ yr cash} - (\text{US} * .7))$   
 CQG Equation =  $(\text{BUS10P} - (\text{USA} * .7))$   
 Where: US = 30 yr electronic futures; 10 yr cash = OTR

**NOB2** =  $(\text{TY} - (\text{US} * .7))$   
 CQG Equation =  $(\text{TYA} - (\text{USA} * .7))$   
 Where: TY = 10 yr electronic futures; US = 30 yr electronic futures

**FAQ**

**Q:** Why do I have a column titled 'q' in certain places?

**A:** Those are q formulas I use within CQG. CQG is the engine behind my morning emails. They provide the quotes, I provide the formulas.

**Q:** Why are certain cells colored?

**A:** They help me identify what formula's need to be changed by hand and which are automated. There are over 9,000 formula's working behind the scenes to deliver the morning emails. I need some kind of system assist me in identifying certain formula's that need to be adjusted on new issues, rolls etc. I also use a color pattern for the treasuries to help with quick visual interpretation.

**Sym Name** = Symbol Name

**BASIS** is conversion factor.

Basis = Cash Price - (Futures Price \* Conversion Factor)

Daily Correlations Treasury Basis^			
	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	(57.6)	(34.5)	50.1
Dow Futures	(47.4)	(31.2)	39.7
USDJPY	9.7	(22.0)	(11.6)
EURUSD	(11.9)	(38.4)	(1.6)
EURJPY	3.3	(32.5)	(9.7)
Crude	(88.6)	(63.4)	30.0
TUF1^	82.3	56.5	(28.5)
2/10	(50.7)	(41.0)	4.0
2/5	26.5	(22.1)	(29.1)
2/30	(23.4)	(27.0)	(20.1)
5/10	(69.3)	(38.0)	16.6
5/30	(35.3)	(24.5)	(14.4)
10/30	36.3	8.7	(59.0)
ZT	(44.3)	(48.1)	(44.3)
ZF	(56.8)	(48.1)	(56.8)
ZN	(59.4)	(54.1)	(59.4)
ZB	(61.4)	(45.5)	(61.4)

q

4

45

47

46

48

49

44

Daily R-Squared Treasury Basis			
	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	0.33	0.12	0.25
Dow Futures	0.22	0.10	0.16
USDJPY	0.01	0.05	0.01
EURUSD	0.01	0.15	0.00
EURJPY	0.00	0.11	0.01
Crude	0.79	0.40	0.09
TUF1^	0.68	0.32	0.08
2/10	0.26	0.17	0.00
2/5	0.07	0.05	0.08
2/30	0.05	0.07	0.04
5/10	0.48	0.14	0.03
5/30	0.12	0.06	0.02
10/30	0.13	0.01	0.35
ZT	0.20	0.23	0.20
ZF	0.32	0.23	0.32
ZN	0.35	0.29	0.35
ZB	0.38	0.21	0.38

^See Notes Page

Daily Correlations											
US Cash Treasuries Spreads (Yield)											
Symbol	2/10	2/5	2/30	5/10	5/30	10/30	NOB1^	NOB2^	TUF^	FYT1^	FYT2^
2/10		52.1	94.1	93.6	92.9	50.5	20.5	88.3	(56.6)	92.7	(47.2)
2/5	52.1		61.0	18.8	39.8	56.7	33.0	60.5	23.3	47.7	29.4
2/30	94.1	61.0		83.2	97.0	76.7	38.3	87.3	(35.7)	95.3	(19.3)
5/10	93.6	18.8	83.2		90.5	34.7	10.0	76.7	(74.8)	87.1	(66.4)
5/30	92.9	39.8	97.0	90.5		71.4	34.2	82.5	(48.5)	95.7	(31.4)
10/30	50.5	56.7	76.7	34.7	71.4		58.9	55.4	16.3	67.5	40.1
NOB1^	20.5	33.0	38.3	10.0	34.2	58.9					
NOB2^	88.3	60.5	87.3	76.7	82.5	55.4					
TUF^	(56.6)	23.3	(35.7)	(74.8)	(48.5)	16.3					
FYT1^	92.7	47.7	95.3	87.1	95.7	67.5					
FYT2^	(47.2)	29.4	(19.3)	(66.4)	(31.4)	40.1					

Daily R-Squared											
US Cash Treasuries Spreads (Yield)											
Symbol	2/10	2/5	2/30	5/10	5/30	10/30	NOB1^	NOB2^	TUF^	FYT1^	FYT2^
2/10		0.27	0.89	0.88	0.86	0.25	0.04	0.78	0.32	0.86	0.22
2/5	0.27		0.37	0.04	0.16	0.32	0.11	0.37	0.05	0.23	0.09
2/30	0.89	0.37		0.69	0.94	0.59	0.15	0.76	0.13	0.91	0.04
5/10	0.88	0.04	0.69		0.82	0.12	0.01	0.59	0.56	0.76	0.44
5/30	0.86	0.16	0.94	0.82		0.51	0.12	0.68	0.23	0.92	0.10
10/30	0.25	0.32	0.59	0.12	0.51		0.35	0.31	0.03	0.46	0.16
NOB1^	0.04	0.11	0.15	0.01	0.12	0.35					
NOB2^	0.78	0.37	0.76	0.59	0.68	0.31					
TUF^	0.32	0.05	0.13	0.56	0.23	0.03					
FYT1^	0.86	0.23	0.91	0.76	0.92	0.46					
FYT2^	0.22	0.09	0.04	0.44	0.10	0.16					

^ See notes page

q	
6	5YR BASIS
2	10YR BASIS
9	30YR BASIS
45	2/10
47	2/5
46	2/30
48	5/10
49	5/30
44	10/30
4	TUF1^
50	FYT1^
3	FYT2^
1	NOB1^
33	NOB2^