

## The Morning Email: Correlations & R-Squared

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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)

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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	(21.4)	(20.3)	(42.5)	(34.1)	(30.1)	(33.4)	(15.9)	(1.0)	q 6
10YR BASIS	5.3	4.2	(44.3)	(59.4)	(50.1)	(51.4)	(22.7)	22.1	2
30YR BASIS	28.1	19.5	(48.7)	(87.4)	(56.4)	(49.4)	(6.7)	55.1	9
2/10	(90.8)	(85.8)	(21.9)	46.8	86.2	79.8	48.0	(25.7)	45
2/5	(94.3)	(87.3)	(43.3)	28.3	76.8	71.6	54.9	(10.8)	47
2/30	(92.7)	(87.2)	(27.3)	43.7	85.6	79.7	51.9	(22.2)	46
5/10	(81.2)	(77.9)	(5.5)	55.6	85.8	79.0	39.4	(33.8)	48
5/30	(89.4)	(84.7)	(19.5)	49.3	87.2	81.1	49.2	(26.6)	49
10/30	(92.7)	(86.3)	(40.1)	33.4	79.5	75.3	59.4	(11.9)	44
TUF1^	(46.0)	(39.3)	(36.8)	(3.2)	(3.7)	(10.9)	(7.8)	(21.0)	4

^ 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	0.05	0.04	0.18	0.12	0.09	0.11	0.03	0.00	
10YR BASIS	0.00	0.00	0.20	0.35	0.25	0.26	0.05	0.05	
30YR BASIS	0.08	0.04	0.24	0.76	0.32	0.24	0.00	0.30	
2/10	0.82	0.74	0.05	0.22	0.74	0.64	0.23	0.07	
2/5	0.89	0.76	0.19	0.08	0.59	0.51	0.30	0.01	
2/30	0.86	0.76	0.07	0.19	0.73	0.64	0.27	0.05	
5/10	0.66	0.61	0.00	0.31	0.74	0.62	0.16	0.11	
5/30	0.80	0.72	0.04	0.24	0.76	0.66	0.24	0.07	
10/30	0.86	0.74	0.16	0.11	0.63	0.57	0.35	0.01	
TUF1^	0.21	0.15	0.14	0.00	0.00	0.01	0.01	0.04	

^ 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	98.6	60.7	(6.8)	(85.2)	(83.2)	(72.2)	(12.4)
5yr Yield	98.6	100.0	66.9	4.4	(85.8)	(85.5)	(77.8)	(23.6)
10yr Yield	60.7	66.9	100.0	72.9	(35.0)	(42.4)	(77.1)	(77.5)
30yr Yield	(6.8)	4.4	72.9	100.0	23.4	12.6	(35.0)	(88.6)
ZT	(85.2)	(85.8)	(35.0)	23.4	100.0	98.3	75.2	11.7
ZF	(83.2)	(85.5)	(42.4)	12.6	98.3	100.0	83.9	24.3
ZN	(72.2)	(77.8)	(77.1)	(35.0)	75.2	83.9	100.0	66.5
ZB	(12.4)	(23.6)	(77.5)	(88.6)	11.7	24.3	66.5	100.0
emini SP	(0.4)	(7.0)	(70.5)	(84.3)	(24.9)	(14.0)	36.7	70.8
Dow Futures	11.7	5.9	(63.3)	(85.5)	(38.9)	(28.9)	22.5	66.4
USDJPY	73.3	78.7	32.9	(12.0)	(90.6)	(94.0)	(76.4)	(20.2)
EURUSD	45.5	38.9	(37.9)	(83.1)	(68.1)	(58.9)	(9.2)	55.7
EURJPY	70.8	71.5	5.8	(45.2)	(92.7)	(90.8)	(56.4)	10.9
Crude	51.6	52.4	72.8	43.3	(44.0)	(53.0)	(79.5)	(68.3)

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	0.37	0.00	0.73	0.69	0.52	0.02
5yr Yield	0.97		0.45	0.00	0.74	0.73	0.61	0.06
10yr Yield	0.37	0.45		0.53	0.12	0.18	0.59	0.60
30yr Yield	0.00	0.00	0.53		0.05	0.02	0.12	0.78
ZT	0.73	0.74	0.12	0.05		0.97	0.57	0.01
ZF	0.69	0.73	0.18	0.02	0.97		0.70	0.06
ZN	0.52	0.61	0.59	0.12	0.57	0.70		0.44
ZB	0.02	0.06	0.60	0.78	0.01	0.06	0.44	
emini SP	0.00	0.00	0.50	0.71	0.06	0.02	0.13	0.50
Dow Futures	0.01	0.00	0.40	0.73	0.15	0.08	0.05	0.44
USDJPY	0.54	0.62	0.11	0.01	0.82	0.88	0.58	0.04
EURUSD	0.21	0.15	0.14	0.69	0.46	0.35	0.01	0.31
EURJPY	0.50	0.51	0.00	0.20	0.86	0.82	0.32	0.01
Crude	0.27	0.27	0.53	0.19	0.19	0.28	0.63	0.47



		Daily Correlations US Cash Treasuries			Daily Correlations US Bonds/Notes (CBOT)				
SYM NAME	Symbol	2yr	5yr	10yr	ZT	ZF	ZN	Symbol	SYM NAME
Schatz(2Y)	DGU7	(88.83)	(93.45)	(62.80)	92.72	95.01	89.08	DGU7	Schatz(2Y)
Bobl(5Y)	DLU7	(84.89)	(90.02)	(66.54)	88.67	92.16	92.32	DLU7	Bobl(5Y)
Bund(10Y)	DBU7	(64.87)	(71.75)	(75.29)	68.00	75.08	91.99	DBU7	Bund(10Y)

		Daily R-Squared US Cash Treasuries			Daily R-Squared US Bonds/Notes (CBOT)				
SYM NAME	Symbol	2yr	5yr	10yr	ZT	ZF	ZN	Symbol	SYM NAME
Schatz(2Y)	DGU7	0.79	0.87	0.39	0.97	0.90	0.79	DGU7	Schatz(2Y)
Bobl(5Y)	DLU7	0.72	0.81	0.44	0.79	0.85	0.85	DLU7	Bobl(5Y)
Bund(10Y)	DBU7	0.42	0.51	0.57	0.46	0.56	0.85	DBU7	Bund(10Y)

Daily Correlations					
Symbol	CLA	HOA	RBA	NGA	Sym Name
CLA	100.0	91.5	90.8	62.6	Crude Oil
HOA	91.5	100.0	95.2	49.3	Heating Oil
RBA	90.8	95.2	100.0	58.4	unleaded Gas
NGA	62.6	49.3	58.4	100.0	Nat Gas
DJIA	(42.6)	(25.5)	(26.8)	(86.3)	Dow Cash
SPC5	(51.0)	(32.5)	(36.6)	(88.3)	S&P 500 Cash
EURUSD	(14.2)	(4.2)	(1.0)	(72.2)	€ / \$
EURJPY	21.0	11.7	17.3	(39.8)	€ / ¥
USDJPY	40.2	20.0	26.0	(11.0)	\$ / ¥

Daily R-Squared					
Symbol	CLA	HOA	RBA	NGA	Sym Name
CLA		0.84	0.82	0.39	Crude Oil
HOA	0.84		0.91	0.24	Heating Oil
RBA	0.82	0.91		0.34	unleaded Gas
NGA	0.39	0.24	0.34		Nat Gas
DJIA	0.18	0.07	0.07	0.75	Dow Cash
SPC5	0.26	0.11	0.13	0.78	S&P 500 Cash
EURUSD	0.02	0.00	0.00	0.52	€ / \$
EURJPY	0.04	0.01	0.03	0.16	€ / ¥
USDJPY	0.16	0.04	0.07	0.01	\$ / ¥

ALL Correlations is based on 10 day historical

**TUF1** = Cash2yr Yield - 5 Year Futures

$TUF1 = SHARESCALE(BUSP02 - (FVAU7 * .5), INTEGER1) * 32$

Where FVAU7 is the 5yr Sep futures contract.

ALL Contracts will be rolled for formula as needed.

**Sym Name** = Symbol Name

#### 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.

**BASIS** is conversion factor.

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

**Daily Correlations  
Treasury Basis^**

	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	41.0	53.4	79.5
Dow Futures	45.6	62.7	86.1
USDJPY	33.4	56.0	43.2
EURUSD	42.3	67.6	93.3
EURJPY	41.5	68.2	71.1
Crude	4.6	1.7	(6.9)
TUF1^	90.5	70.5	24.2
2/10	3.9	(29.9)	(60.2)
2/5	21.7	(7.0)	(42.6)
2/30	6.5	(27.2)	(58.2)
5/10	(8.5)	(43.1)	(67.3)
5/30	(0.4)	(35.3)	(63.5)
10/30	12.9	(18.5)	(50.0)
ZT	(30.1)	(50.1)	(30.1)
ZF	(33.4)	(51.4)	(33.4)
ZN	(15.9)	(22.7)	(15.9)
ZB	(1.0)	22.1	(1.0)

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**Daily R-Squared  
Treasury Basis**

	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	0.17	0.29	0.63
Dow Futures	0.21	0.39	0.74
USDJPY	0.11	0.31	0.19
EURUSD	0.18	0.46	0.87
EURJPY	0.17	0.46	0.51
Crude	0.00	0.00	0.00
TUF1^	0.82	0.50	0.06
2/10	0.00	0.09	0.36
2/5	0.05	0.00	0.18
2/30	0.00	0.07	0.34
5/10	0.01	0.19	0.45
5/30	0.00	0.12	0.40
10/30	0.02	0.03	0.25
ZT	0.09	0.25	0.09
ZF	0.11	0.26	0.11
ZN	0.03	0.05	0.03
ZB	0.00	0.05	0.00

^See Notes Page



