

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.

Conditionally formatted cells:

If there's an R-Squared equal to or greater than 80%, then, the cell will turn BLUE. That tells us that there's an 80% chance that one of the instruments is causing the other to move. HOWEVER, the gold and currency pages are set to 70% or greater. Lastly, If the cell is any other color, just ignore it. Other colors are 'notes' for me. --Thanks, Jim

Want something added? Let me know: jgoulding@ghco.com

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	Daily Correlations				Daily Correlations			
	US Cash Treasuries (Yield)				US Bonds/Notes (CBOT)			
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB
5YR BASIS	(59.1)	(63.8)	(77.8)	(80.5)	51.6	50.1	71.3	67.2
10YR BASIS	(80.5)	(83.3)	(93.8)	(96.2)	75.3	75.3	88.5	89.2
30YR BASIS	(68.2)	(69.6)	(84.9)	(90.6)	61.4	59.6	78.1	76.6
2/10	(81.8)	(77.4)	(60.0)	(53.2)	85.7	84.4	68.9	70.3
2/5	(71.0)	(61.8)	(55.9)	(54.1)	72.9	65.2	60.4	59.4
2/30	(86.5)	(83.4)	(67.4)	(59.7)	90.2	89.2	75.9	76.2
5/10	(73.7)	(72.8)	(51.9)	(43.6)	78.1	80.6	61.8	64.2
5/30	(81.2)	(80.9)	(63.0)	(53.9)	85.1	86.9	72.0	72.7
10/30	(84.7)	(85.9)	(76.9)	(67.7)	87.0	86.9	82.6	79.7
TUF1^	46.8	50.8	33.5	22.2	(47.0)	(56.0)	(36.0)	(47.2)

^ See notes page

	Daily R-Squared				Daily R-Squared			
	US Cash Treasuries (Yield)				US Bonds/Notes (CBOT)			
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB
5YR BASIS	0.35	0.41	0.61	0.65	0.27	0.25	0.51	0.45
10YR BASIS	0.65	0.69	0.88	0.93	0.57	0.57	0.78	0.80
30YR BASIS	0.47	0.48	0.72	0.82	0.38	0.35	0.61	0.59
2/10	0.67	0.60	0.36	0.28	0.73	0.71	0.47	0.49
2/5	0.50	0.38	0.31	0.29	0.53	0.42	0.36	0.35
2/30	0.75	0.70	0.45	0.36	0.81	0.80	0.58	0.58
5/10	0.54	0.53	0.27	0.19	0.61	0.65	0.38	0.41
5/30	0.66	0.65	0.40	0.29	0.72	0.76	0.52	0.53
10/30	0.72	0.74	0.59	0.46	0.76	0.76	0.68	0.64
TUF1^	0.22	0.26	0.11	0.05	0.22	0.31	0.13	0.22

^ See notes page

	Daily Correlations US Cash Treasuries (Yield)				Daily Correlations US Bonds/Notes (CBOT)				
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB	Exchange
2yr Yield	100.0	99.2	95.1	91.9	(99.5)	(98.6)	(97.8)	(97.8)	
5yr Yield	99.2	100.0	96.4	93.1	(98.3)	(98.7)	(98.7)	(98.8)	
10yr Yield	95.1	96.4	100.0	99.1	(92.3)	(91.8)	(99.0)	(98.3)	
30yr Yield	91.9	93.1	99.1	100.0	(88.1)	(87.6)	(96.8)	(96.5)	
ZT	(99.5)	(98.3)	(92.3)	(88.1)	100.0	99.1	96.1	96.3	
ZF	(98.6)	(98.7)	(91.8)	(87.6)	99.1	100.0	95.6	96.8	
ZN	(97.8)	(98.7)	(99.0)	(96.8)	96.1	95.6	100.0	98.7	
ZB	(97.8)	(98.8)	(98.3)	(96.5)	96.3	96.8	98.7	100.0	
emini SP	74.6	77.4	61.4	53.6	(76.7)	(81.4)	(67.5)	(70.9)	CME
Dow Futures	74.5	77.8	63.8	56.5	(75.6)	(79.6)	(69.1)	(71.2)	CME/eCbot
USDJPY	83.3	83.0	68.1	63.8	(84.2)	(87.1)	(75.4)	(76.9)	Cash Market
EURUSD	39.3	40.5	56.6	59.7	(35.1)	(30.2)	(47.3)	(48.4)	Cash Market
EURJPY	94.8	95.5	92.5	90.7	(92.7)	(92.7)	(93.1)	(95.1)	Cash Market
Crude	60.8	60.6	77.9	82.9	(54.7)	(49.9)	(69.9)	(68.2)	CME/NYMEX

	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		0.98	0.90	0.84	0.99	0.97	0.96	0.96	
5yr Yield	0.98		0.93	0.87	0.97	0.97	0.97	0.98	
10yr Yield	0.90	0.93		0.98	0.85	0.84	0.98	0.97	
30yr Yield	0.84	0.87	0.98		0.78	0.77	0.94	0.93	
ZT	0.99	0.97	0.85	0.78		0.98	0.92	0.93	
ZF	0.97	0.97	0.84	0.77	0.98		0.91	0.94	
ZN	0.96	0.97	0.98	0.94	0.92	0.91		0.97	
ZB	0.96	0.98	0.97	0.93	0.93	0.94	0.97		
emini SP	0.56	0.60	0.38	0.29	0.59	0.66	0.46	0.50	
Dow Futures	0.56	0.60	0.41	0.32	0.57	0.63	0.48	0.51	
USDJPY	0.69	0.69	0.46	0.41	0.71	0.76	0.57	0.59	
EURUSD	0.15	0.16	0.32	0.36	0.12	0.09	0.22	0.23	
EURJPY	0.90	0.91	0.86	0.82	0.86	0.86	0.87	0.90	
Crude	0.37	0.37	0.61	0.69	0.30	0.25	0.49	0.47	



	Symbol	Daily Correlations			Daily Correlations			Symbol	<u>Exchange</u>
		2yr	5yr	10yr	ZT	ZF	ZN		
Schatz(2Y)	DG	(98.79)	(97.78)	(92.40)	98.15	97.60	94.97	DG	EUREX
Bobl(5Y)	DL	(97.88)	(97.55)	(91.08)	97.19	97.45	93.88	DL	EUREX
Bund(10Y)	DB	(93.45)	(94.13)	(84.74)	93.08	95.10	88.55	DB	EUREX

	Symbol	Daily R-Squared			Daily R-Squared			Symbol	
		2yr	5yr	10yr	ZT	ZF	ZN		
Schatz(2Y)	DG	0.98	0.96	0.85	0.96	0.95	0.90	DG	Schatz(2Y)
Bobl(5Y)	DL	0.96	0.95	0.83	0.94	0.95	0.88	DL	Bobl(5Y)
Bund(10Y)	DB	0.87	0.89	0.72	0.87	0.90	0.78	DB	Bund(10Y)

How does this work on the ROLL? Formula's track the highest volume individual contract. For example, if we are rolling from Dec 2007 to March 2007, for the eCBOT, then, the day up to the 'top step change' Dec07 will be the highest volume traded contract. On the day of the switch, Mch08 will be the highest volume traded contract.

The formula will mix Dec07 and Mch08 until we've reached the 10th day of the change over. We always roll on the last trading day of the month. In this case it would be November 30th. So, by the tenth trading day of December the formula will have tracked the Mch08 contract entirely.

However, it doesn't matter. All that I'm concerned with is the highest volume contract and that's what the formulas track.

Furthermore, it works the same way for the Bund, Bobl, and Schatz; whatever contract is the highest volume contract, that's the contract the formula will take its data from.

- 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 = SHARESCALE(BUSP02-(FVA?*.5),INTEGER1)*32? Where FVA? is the 5yr electronic lead month futures contract.

FYT1 = (FV*1.5)-TY)

CQG Equation = ((FVA?*1.5)-TYA?)

Where: FV = 5 yr electronic futures; TY = 10 yr electronic futures

FYT2 = ((5 yr cash - (TY*.7))

CQG Equation ((BUS05P-(TYA*.7))

Where: 5 yr cash = OTR; TY = 10 yr electronic futures

NOB1 = (10 yr cash - (US*.7))

CQG Equation = (BUS10P-(USA*.7))

Where: US = 30 yr electronic futures; 10 yr cash = OTR

NOB2 = (TY-(US*.7))

CQG Equation = (TYA-(USA*.7))

Where: TY = 10 yr electronic futures; US = 30 yr electronic futures

BASIS is conversion factor.

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

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 treasures to help with quick visual interpretation.

US Treasury Basis

Daily Correlations			
Treasury Basis^			
	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	(24.4)	(41.6)	(18.7)
5\$ Dow Futures	(33.9)	(46.1)	(24.8)
USDJPY	(29.2)	(44.9)	(35.0)
EURUSD	(69.0)	(74.5)	(67.7)
EURJPY	(65.6)	(84.2)	(70.8)
Crude	(85.6)	(90.2)	(94.0)
TUF1^	20.0	(12.8)	9.9
2/10	9.2	34.4	18.5
2/5	16.1	40.6	38.0
2/30	19.0	41.3	23.7
5/10	3.2	24.2	4.4
5/30	17.2	36.3	14.8
10/30	42.9	57.2	34.6
ZT	52.4	76.0	52.4
ZF	50.1	75.3	50.1
ZN	71.3	88.0	71.3
ZB	67.2	88.9	67.2

q

Daily R-Squared			
Treasury Basis			
	5YR BASIS	10YR BASIS	30YR BASIS Exchange
emini SP	0.06	0.17	0.03 Globex
5\$ Dow Futures	0.12	0.21	0.06 Globex
USDJPY	0.09	0.20	0.12 Cash
EURUSD	0.48	0.56	0.46 Cash
EURJPY	0.43	0.71	0.50 Cash
Crude	0.73	0.81	0.88 CME / NYMEX
TUF1^	0.04	0.02	0.01 CME / NYMEX
2/10	0.01	0.12	0.03 BrokerTec
2/5	0.03	0.16	0.14 BrokerTec
2/30	0.04	0.17	0.06 BrokerTec
5/10	0.00	0.06	0.00 BrokerTec
5/30	0.03	0.13	0.02 BrokerTec
10/30	0.18	0.33	0.12 BrokerTec
ZT	0.27	0.58	0.27 Globex
ZF	0.25	0.57	0.25 Globex
ZN	0.51	0.77	0.51 Globex
ZB	0.45	0.79	0.45 Globex

^See "Notes Page"

US Treasury Spreads

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		79.7		98.5	94.1	92.9	76.0	(51.4)	(41.0)	(58.8)	85.2
2/5	79.7			75.5	54.6	55.6	49.0	(16.5)	(23.3)	(3.1)	46.9
2/30	98.5	75.5			94.4	96.5	86.0	(43.1)	(38.2)	(61.2)	81.6
5/10	94.1	54.6	94.4			97.8	77.9	(62.1)	(45.6)	(77.0)	91.8
5/30	92.9	55.6	96.5	97.8			89.4	(48.1)	(39.0)	(69.8)	85.0
10/30	76.0	49.0	86.0	77.9		89.4		(10.7)	(22.9)	(57.1)	57.1
NOB1^	(51.4)	(16.5)	(43.1)	(62.1)	(48.1)	(10.7)					
NOB2^	(41.0)	(23.3)	(38.2)	(45.6)	(39.0)	(22.9)					
TUF^	(58.8)	(3.1)	(61.2)	(77.0)	(69.8)	(57.1)					
FYT1^	85.2	46.9	81.6	91.8	85.0	57.1					
FYT2^	80.6	35.7	79.1	91.8	85.9	59.9					

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		0.64	0.97	0.89	0.86	0.58	0.26	0.17	0.35	0.73	0.65
2/5	0.64		0.57	0.30	0.31	0.24	0.03	0.05	0.00	0.22	0.13
2/30	0.97	0.57		0.89	0.93	0.74	0.19	0.15	0.37	0.67	0.63
5/10	0.89	0.30	0.89		0.96	0.61	0.39	0.21	0.59	0.84	0.84
5/30	0.86	0.31	0.93	0.96		0.80	0.23	0.15	0.49	0.72	0.74
10/30	0.58	0.24	0.74	0.61	0.80		0.01	0.05	0.33	0.33	0.36
NOB1^	0.26	0.03	0.19	0.39	0.23	0.01					
NOB2^	0.17	0.05	0.15	0.21	0.15	0.05					
TUF^	0.35	0.00	0.37	0.59	0.49	0.33					
FYT1^	0.73	0.22	0.67	0.84	0.72	0.33					
FYT2^	0.65	0.13	0.63	0.84	0.74	0.36					

[^] See notes page

Symbol	Daily Correlations	
	GC	YG
emini SP	27.8	27.7
5\$ Dow Futures	37.9	37.8
WTI Crude	82.4	81.1
Brent Crude	81.2	79.7
USDJPY	6.8	5.3
EURUSD	87.9	89.0
EURJPY	58.1	57.5
Euro	85.9	86.9
Yen	(7.2)	(5.9)
Swiss Fr	36.4	38.7
Canadian \$	52.9	52.3
2yr Yield	45.9	44.1
5yr Yield	47.4	45.8
10yr Yield	59.8	58.0
30yr Yield	60.9	59.1
ZT	(41.2)	(39.5)
ZF	(37.5)	(35.8)
ZN	(52.2)	(50.3)
ZB	(52.0)	(50.5)

Symbol	Daily R-Squared		Exchange
	GC	YG	
emini SP	0.08	0.08	Globex
5\$ Dow Futures	0.14	1.43	Globex
WTI Crude	0.68	0.66	Glbx / Nymex
Brent Crude	0.66	0.64	ICE
USDJPY	0.00	0.00	Cash
EURUSD	0.77	0.79	Cash
EURJPY	0.34	0.33	Cash
Euro	0.74	0.76	Globex
Yen	0.01	0.00	Globex
Swiss Fr	0.13	0.15	Globex
Canadian \$	0.28	0.27	Globex
2yr Yield	0.21	0.19	Broker Tec
5yr Yield	0.22	0.21	Broker Tec
10yr Yield	0.36	0.34	Broker Tec
30yr Yield	0.37	0.35	Broker Tec
ZT	0.17	0.16	Globex
ZF	0.14	0.13	Globex
ZN	0.27	0.25	Globex
ZB	0.27	0.25	Globex

Note: YG old ecbot gold, now on CME (used to be eCbot). GC is Globex/Nymex Gold.

This matrix is set-up to have the cells automatically highlight themselves if there's an R-Squared greater than 70%.

q
6 **5YR BASIS**
2 **10YR BASIS**
9 **30YR BASIS**
45 2/10 This page contains notes for me.
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^

Daily Correlations

	Globex Emini SP	Globex 5\$ Dow Futrs	Exchange
USDJPY	85.4	82.4	Cash
EURUSD	7.8	16.4	Cash
EURJPY	77.8	80.3	Cash
Euro	10.1	18.3	Globex
Yen	(89.0)	(85.7)	Globex
Swiss Fr	(63.3)	(55.7)	Globex
Canadain \$	75.5	75.5	Globex
WTI Crude	10.2	17.8	Glbx / Nymx
Brent Crude	3.1	10.9	ICE
2yr Yield	74.6	74.5	BTEC
5yr Yield	77.4	77.8	BTEC
10yr Yield	61.4	63.8	BTEC
30yr Yield	53.6	56.5	BTEC
ZT	(76.8)	(75.6)	Globex
ZF	(81.4)	(79.7)	Globex
ZN	(67.6)	(69.1)	Globex
ZB	(70.9)	(71.2)	Globex
GC	27.8	37.9	Glbx / Nymx
YG	27.7	37.8	Globex

R-Squared

	Globex Emini SP	Globex 5\$ Dow Futrs	Exchange
USDJPY	0.73	0.68	Cash
EURUSD	0.01	0.03	Cash
EURJPY	0.61	0.65	Cash
Euro	0.01	0.03	Globex
Yen	0.79	0.73	Globex
Swiss Fr	0.40	0.31	Globex
Canadain \$	0.57	0.57	Globex
WTI Crude	0.01	0.03	Glbx / Nymx
Brent Crude	0.00	0.01	ICE
2yr Yield	0.56	0.56	BTEC
5yr Yield	0.60	0.60	BTEC
10yr Yield	0.38	0.41	BTEC
30yr Yield	0.29	0.32	BTEC
ZT	0.59	0.57	Globex
ZF	0.66	0.64	Globex
ZN	0.46	0.48	Globex
ZB	0.50	0.51	Globex
GC	0.08	0.14	Glbx / Nymx
YG	0.08	0.14	Globex