

## The Morning Email: Correlations & R-Squared

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One contract may be correlating with another but does that mean there's causation. You must ask, "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](mailto:jgoulding@ghco.com)

**Disclaimer:**All information within this newsletter is meant for internal use at HTG Capital Partners, 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.

	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	(80)	(74)	(1)	38	62	48	17	(46)
10YR BASIS	51	7	(79)	(92)	(44)	3	45	82
30YR BASIS	48	4	(82)	(96)	(39)	8	50	87
2/10	(77)	(39)	62	90	62	18	(29)	(86)
2/5	(25)	19	89	90	10	(38)	(73)	(88)
2/30	(83)	(48)	53	87	69	28	(19)	(83)
5/10	(92)	(64)	38	75	80	46	(0)	(70)
5/30	(92)	(65)	35	75	80	47	1	(71)
10/30	(88)	(65)	29	72	76	46	4	(68)
TUF1^	(79)	(41)	59	87	62	20	(26)	(85)

^ See notes page

	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	64	54	0	14	39	23	3	22
10YR BASIS	26	1	63	85	19	0	20	68
30YR BASIS	23	0	66	92	15	1	25	75
2/10	59	15	39	80	39	3	8	74
2/5	6	4	79	81	1	15	53	78
2/30	68	23	29	75	47	8	4	69
5/10	84	40	14	56	65	21	0	50
5/30	85	43	12	56	65	22	0	50
10/30	78	43	9	52	58	22	0	47
TUF1^	62	16	35	75	38	4	7	72

^ See notes page

	Daily Correlations US Cash Treasuries (Yield)				Daily Correlations US Bonds/Notes (CBOT)				Exchange
	2yr Yield	5yr Yield	10yr Yield	30yr Yield	ZT	ZF	ZN	ZB	
2yr Yield	100	88	0	(45)	(95)	(75)	(37)	40	
5yr Yield	88	100	47	1	(90)	(95)	(74)	(4)	
10yr Yield	0	47	100	87	(16)	(62)	(90)	(87)	
30yr Yield	(45)	1	87	100	28	(20)	(63)	(97)	
ZT	(95)	(90)	(16)	28	100	87	55	(17)	
ZF	(75)	(95)	(62)	(20)	87	100	88	29	
ZN	(37)	(74)	(90)	(63)	55	88	100	69	
ZB	40	(4)	(87)	(97)	(17)	29	69	100	
emini SP	78	80	11	(32)	(71)	(64)	(33)	34	CME
Dow Futures	79	80	8	(35)	(71)	(63)	(31)	37	CME/eCbot
USDJPY	62	77	42	9	(76)	(83)	(68)	(19)	Cash Market
EURUSD	17	11	(17)	(36)	4	11	23	49	Cash Market
EURJPY	51	54	8	(27)	(41)	(38)	(18)	33	Cash Market
Crude	30	30	(11)	(35)	(19)	(12)	6	42	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		77	0	20	90	56	14	16
5yr Yield	77	1	22	0	82	90	54	0
10yr Yield	0	22		76	3	38	81	75
30yr Yield	20	0	76		8	4	39	94
ZT	90	82	3	8		76	31	3
ZF	56	90	38	4	76		78	8
ZN	14	54	81	39	31	78		48
ZB	16	0	75	94	3	8	48	
emini SP	61	64	1	10	51	41	11	12
Dow Futures	63	63	1	12	51	40	10	14
USDJPY	38	59	17	1	57	69	47	4
EURUSD	3	1	3	13	0	1	5	24
EURJPY	26	30	1	7	17	15	3	11
Crude	9	9	1	13	4	1	0	18



Daily Correlations US Cash Treasuries				Daily Correlations US Bonds/Notes (CBOT)						
Symbol	2yr	5yr	10yr	ZT	ZF	ZN	Symbol	Exchange		
Schatz(2Y)	DG	(25)	(64)	(92)	33	69	87	DG	Schatz(2Y)	EUREX
Bobl(5Y)	DL	37	(10)	(91)	(19)	30	70	DL	Bobl(5Y)	EUREX
Bund(10Y)	DB	52	9	(79)	(32)	15	57	DB	Bund(10Y)	EUREX

Daily R-Squared US Cash Treasuries				Daily R-Squared US Bonds/Notes (CBOT)					
Symbol	2yr	5yr	10yr	ZT	ZF	ZN	Symbol	Exchange	
Schatz(2Y)	DG	6	41	85	11	48	76	DG	Schatz(2Y)
Bobl(5Y)	DL	14	1	83	4	9	49	DL	Bobl(5Y)
Bund(10Y)	DB	27	1	63	10	2	32	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.

**Energies**  
**Daily Correlations**

	CLA	HOA	RBA	NGA	
CLA	100	99	91	62	Crude Oil
HOA	99	100	88	58	Heating Oil
RBA	91	88	100	47	unleaded Gas
NGA	62	58	47	100	Nat Gas
DJIA	78	77	91	26	Dow Cash
SPC5	73	79	90	(8)	S&P 500 Cash
EURUSD	87	81	75	79	€ / \$
EURJPY	92	90	90	59	€ / ¥
USDJPY	24	30	39	(18)	\$ / ¥
GCA	68	67	40	65	Gold

**Energies**  
**Daily R-Squared**

	CLA	HOA	RBA	NGA	
CLA		98	83	38	Crude Oil
HOA	98		78	33	Heating Oil
RBA	83	78		22	unleaded Gas
NGA	38	33	22		Nat Gas
DJIA	61	59	82	7	Dow Cash
SPC5	53	62	81	1	S&P 500 Cash
EURUSD	76	66	57	63	€ / \$
EURJPY	84	80	81	35	€ / ¥
USDJPY	6	9	15	3	\$ / ¥
GCA	46	45	16	42	Gold

**Exchange**

CME / Nymex  
CME / Nymex  
CME / Nymex  
CME / Nymex  
NYSE (Cash)  
Cash  
Cash  
Cash  
Cash  
Comex

**Currencies**  
**Daily Correlations**

	EURUSD	EURJPY	USDJPY	GBPEUR	
EURUSD	100	82	(12)	42	€ / \$
EURJPY	82	100	47	59	€ / ¥
USDJPY	(12)	47	100	36	\$ / ¥
Euro	98	80	(13)	36	€
Yen	12	(47)	(99)	(41)	¥
Swiss Fr	90	58	(39)	10	CHF
Canadain \$	75	94	48	65	C\$

**Currencies**  
**Daily R-Squared**

	EURUSD	EURJPY	USDJPY	GBPEUR	
EURUSD		67	1	18	€ / \$
EURJPY	67		22	35	€ / ¥
USDJPY	1	22		13	\$ / ¥
Euro	96	63	2	13	€
Yen	1	22	98	17	¥
Swiss Fr	82	34	15	1	CHF
Canadain \$	56	89	23	42	C\$

**Exchange**

Cash  
Cash  
Cash  
CME/Globex  
CME/Globex  
CME/Globex  
CME/Globex

**Currencies**  
**Daily Correlations**

	Euro	Yen	Swiss Fr	Canadain \$	
Euro	100	12	94	72	€
Yen	12	100	37	(49)	¥
Swiss Fr	94	37	100	47	CHF
Canadain \$	72	(49)	47	100	C\$

**Currencies**  
**Daily R-Squared**

	Euro	Yen	Swiss Fr	Canadain \$	
Euro		1	89	52	€
Yen	1		14	24	¥
Swiss Fr	89	14		23	CHF
Canadain \$	52	24	23		C\$

**Exchange**

CME/Globex  
CME/Globex  
CME/Globex  
CME/Globex

## Notes:

EURUSD, EURJPY, USDJPY, & USDGBP are all cash market products.

Euro, Yen, Swiss Fr, Canadain \$, & BP are all CME products.

- 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 =  $((\text{FVA}?.5) - \text{TYA}?)$

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

**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 treasuries to help with quick visual interpretation.

Daily Correlations  
Treasury Basis^

	5YR BASIS	10YR BASIS	30YR BASIS
emini SP	(84)	27	30
5\$ Dow Futures	(85)	30	32
USDJPY	(37)	10	5
EURUSD	(56)	6	20
EURJPY	(71)	12	21
Crude	(58)	16	28
TUF1^	67	(84)	(82)
2/10	65	(88)	(87)
2/5	26	(80)	(84)
2/30	71	(83)	(84)
5/10	75	(77)	(74)
5/30	78	(74)	(74)
10/30	79	(67)	(71)
ZT	62	(44)	62
ZF	48	3	48
ZN	17	45	17
ZB	(46)	82	(46)

Daily R-Squared  
Treasury Basis

	5YR BASIS	10YR BASIS	30YR BASIS	Exchange
emini SP	71	7	9	Globex
5\$ Dow Futures	73	9	10	Globex
USDJPY	14	1	0	Cash
EURUSD	31	0	4	Cash
EURJPY	51	2	4	Cash
Crude	34	3	8	CME / NYMEX
TUF1^	44	71	67	CME / NYMEX
2/10	42	77	75	BrokerTec
2/5	7	64	71	BrokerTec
2/30	50	69	71	BrokerTec
5/10	56	60	55	BrokerTec
5/30	60	55	55	BrokerTec
10/30	62	44	50	BrokerTec
ZT	39	19	39	Globex
ZF	23	0	23	Globex
ZN	3	20	3	Globex
ZB	22	68	22	Globex

^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		80	99	94	93	87	81	94	96	97	93
2/5	80		73	55	55	51	49	60	70	68	67
2/30	99	73		97	97	94	86	98	96	97	94
5/10	94	55	97		99	92	84	96	95	96	91
5/30	93	55	97	99		97	89	98	93	96	92
10/30	87	51	94	92	97		92	97	86	90	89
NOB1^	81	49	86	84	89	92					
NOB2^	94	60	98	96	98	97					
TUF^	96	70	96	95	93	86					
FYT1^	97	68	97	96	96	90					
FYT2^	93	67	94	91	92	89					

## 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		63	97	89	87	76	65	88	93	94	86
2/5	63		53	31	30	26	24	36	49	47	45
2/30	97	53		93	95	88	75	95	92	95	89
5/10	89	31	93		98	85	71	93	90	93	83
5/30	87	30	95	98		94	79	97	87	91	85
10/30	76	26	88	85	94		84	94	74	80	79
NOB1^	65	24	75	71	79	84					
NOB2^	88	36	95	93	97	94					
TUF^	93	49	92	90	87	74					
FYT1^	94	47	95	93	91	80					
FYT2^	86	45	89	83	85	79					

^ See notes page

Daily Correlations		
Symbol	GC	Exchange
emini SP	9	Globex
5\$ Dow Futures	9	Globex
WTI Crude	68	Glbx / Nymx
Brent Crude	54	ICE
USDJPY	(26)	Cash
EURUSD	73	Cash
EURJPY	50	Cash
Euro	83	Globex
Yen	22	Globex
Swiss Fr	91	Globex
Canadain \$	36	Globex
2yr Yield	(42)	Broker Tec
5yr Yield	(40)	Broker Tec
10yr Yield	(18)	Broker Tec
30yr Yield	(8)	Broker Tec
ZT	51	Globex
ZF	46	Globex
ZN	37	Globex
ZB	18	Globex

Daily R-Squared		
Symbol	GC	Exchange
emini SP	1	Globex
\$ Dow Futures	1	Globex
WTI Crude	46	Glbx / Nymx
Brent Crude	29	ICE
USDJPY	7	Cash
EURUSD	54	Cash
EURJPY	25	Cash
Euro	68	Globex
Yen	5	Globex
Swiss Fr	83	Globex
Canadain \$	13	Globex
2yr Yield	18	Broker Tec
5yr Yield	16	Broker Tec
10yr Yield	3	Broker Tec
30yr Yield	1	Broker Tec
ZT	26	Globex
ZF	22	Globex
ZN	13	Globex
ZB	3	Globex

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

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

## Daily Correlations

Symbol	USDJPY	EURUSD	EURJPY	Euro	Yen	Swiss Fr	Canadian \$	Exchange
USDJPY		(12)	47	(13)	(99)	(39)	48	Cash
EURUSD	(12)		82	98	12	90	75	Cash
EURJPY	47	82		80	(47)	58	94	Cash
Euro	(13)	98	80		12	94	72	Globex
Yen	(99)	12	(47)	12		37	(49)	Globex
Swiss Fr	(39)	90	58	94	37		47	Globex
Canadian \$	48	75	94	72	(49)	47		Globex
emini SP	67	54	87	48	(66)	20	93	Globex
5\$ Dow Futures	65	55	86	48	(64)	20	93	Globex
WTI Crude	24	87	92	89	(26)	73	91	Glbx / Nymx
Brent Crude	36	81	36	80	(37)	61	95	ICE
2yr Yield	62	17	51	6	(61)	(24)	63	BTEC
5yr Yield	77	11	54	4	(74)	(26)	65	BTEC
10yr Yield	42	(17)	8	(14)	(36)	(18)	8	BTEC
30yr Yield	9	(36)	(27)	(28)	(5)	(17)	(31)	BTEC
ZT	(76)	4	(41)	11	75	41	(54)	Globex
ZF	(83)	11	(38)	14	80	41	(48)	Globex
ZN	(68)	23	(18)	21	64	37	(24)	Globex
ZB	(19)	49	33	40	15	31	35	Globex

## Daily R-Squared

Symbol	USDJPY	EURUSD	EURJPY	Euro	Yen	Swiss Fr	Canadian \$
USDJPY		1	22	2	98	15	23
EURUSD	1		67	96	1	82	56
EURJPY	22	67		63	22	34	89
Euro	2	96	63		1	89	52
Yen	98	1	22	1		14	24
Swiss Fr	15	82	34	89	14		23
Canadian \$	23	56	89	52	24	23	
emini SP	45	30	76	23	44	4	87
5\$ Dow Futures	42	30	75	23	41	4	86
WTI Crude	6	76	84	78	7	53	82
Brent Crude	13	66	13	65	14	37	90
2yr Yield	38	3	26	0	37	6	39
5yr Yield	59	1	30	0	54	7	43
10yr Yield	17	3	1	2	13	3	1
30yr Yield	1	13	7	8	0	3	10
ZT	57	0	17	1	57	17	29
ZF	69	1	15	2	64	17	23
ZN	47	5	3	5	41	14	6
ZB	4	24	11	16	2	10	13

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^

This page contains notes for me.

## Daily Correlations

	Globex	Globex	Exchange
	Emini SP	5\$ Dow Futrs	
USDJPY	67	65	Cash
EURUSD	54	55	Cash
EURJPY	87	86	Cash
Euro	48	48	Globex
Yen	(66)	(64)	Globex
Swiss Fr	20	20	Globex
Canadian \$	93	93	Globex
WTI Crude	75	75	Glbx / Nymx
Brent Crude	85	84	ICE
2yr Yield	78	79	BTEC
5yr Yield	80	80	BTEC
10yr Yield	11	8	BTEC
30yr Yield	(32)	(35)	BTEC
ZT	(71)	(71)	Globex
ZF	(64)	(63)	Globex
ZN	(33)	(31)	Globex
ZB	34	37	Globex
GC	9	9	Glbx / Comex

## R-Squared

	Globex	Globex	Exchange
	Emini SP	5\$ Dow Futrs	
USDJPY	45	42	Cash
EURUSD	30	30	Cash
EURJPY	76	75	Cash
Euro	23	23	Globex
Yen	44	41	Globex
Swiss Fr	4	4	Globex
Canadian \$	87	86	Globex
WTI Crude	57	56	Glbx / Nymx
Brent Crude	72	71	ICE
2yr Yield	61	63	BTEC
5yr Yield	64	63	BTEC
10yr Yield	1	1	BTEC
30yr Yield	10	12	BTEC
ZT	51	51	Globex
ZF	41	40	Globex
ZN	11	10	Globex
ZB	12	14	Globex
GC	1	1	Glbx / Comex