



FINANCIALMARKETS**EDUCATION**

Trading Opportunities with BTP Futures

2010

Joe Troccoli

Who am I?

- University of Wisconsin PhD (Mathematics)
- Cleveland State University Assoc Professor
- O'Connor and Associates VP
- Swiss Bank Corporation Executive Director
- UBS Managing Director
- Financial Markets Education
- 20+ years experience in financial markets
 - Teaching options traders
 - Head of Financial Training for Investment Bank

Why are we here?

- Sponsored by Eurex
- Learn about BTP futures
- Discuss how they might fit with your trading strategies
- Answer any questions you might have about
 - The products
 - How they trade
 - The current trading environment in Europe
 - The basics or any advanced topics related to using fixed income futures

BTP Future Contract Specs

- €100,000 notional
- 6% semi-annual coupon
- Republic of Italy Government Bond (BTP)
- 8.5 – 11 years
- Original maturity no more than 16 years
- Delivery day 10th day of expiry month
- Last trading day 2 exchange days prior to delivery day
- Notification day is last trading day
- Final settlement price is an average of last minute or last 10 trades

June Future Deliverable Bonds

<HELP> for explanation, <MENU> for similar functions.
Hit {NUMBER} <GO> to view Historical Basis/Repo

Comdty**DLV**

Cheapest to Deliver

Euro-BTP Future Jun10 **IKMO** 115.83

Trade 3/18/10 Dlv 6/10/10
Set 3/23/10 Cheapest IRP= -.84

Order	DR	re-sort?	(Mid) Price	Source	Conv. Yield	C. Factor	DECIMAL Gross Basis	79 Days Act/360 Implied Repo%	DECIMAL Actual Repo%	Net Basis	
MASTER:											
1)	BTPS4	1/4	03/01/20	102.820	BGN	3.942	.878162	1.102	-.84	.58	.322
2)	BTPS4	1/2	02/01/20	105.170	BGN	3.899	.897022	1.268	-1.23	.58	.422
3)	BTPS4	1/2	03/01/19	106.220	BGN	3.711	.904675	1.431	-1.99	.58	.602
4)	BTPS4	1/4	09/01/19	103.720	BGN	3.812	.882877	1.456	-2.38	.58	.677
5)	BTPS4	1/4	02/01/19	104.580	BGN	3.673	.888655	1.647	-3.12	.58	.854

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BTP Future Daily Performance



BTP Future Intraday



Order Book

Contract Combination Overview - FBTP JUN10

Window Select Trading Columns Help

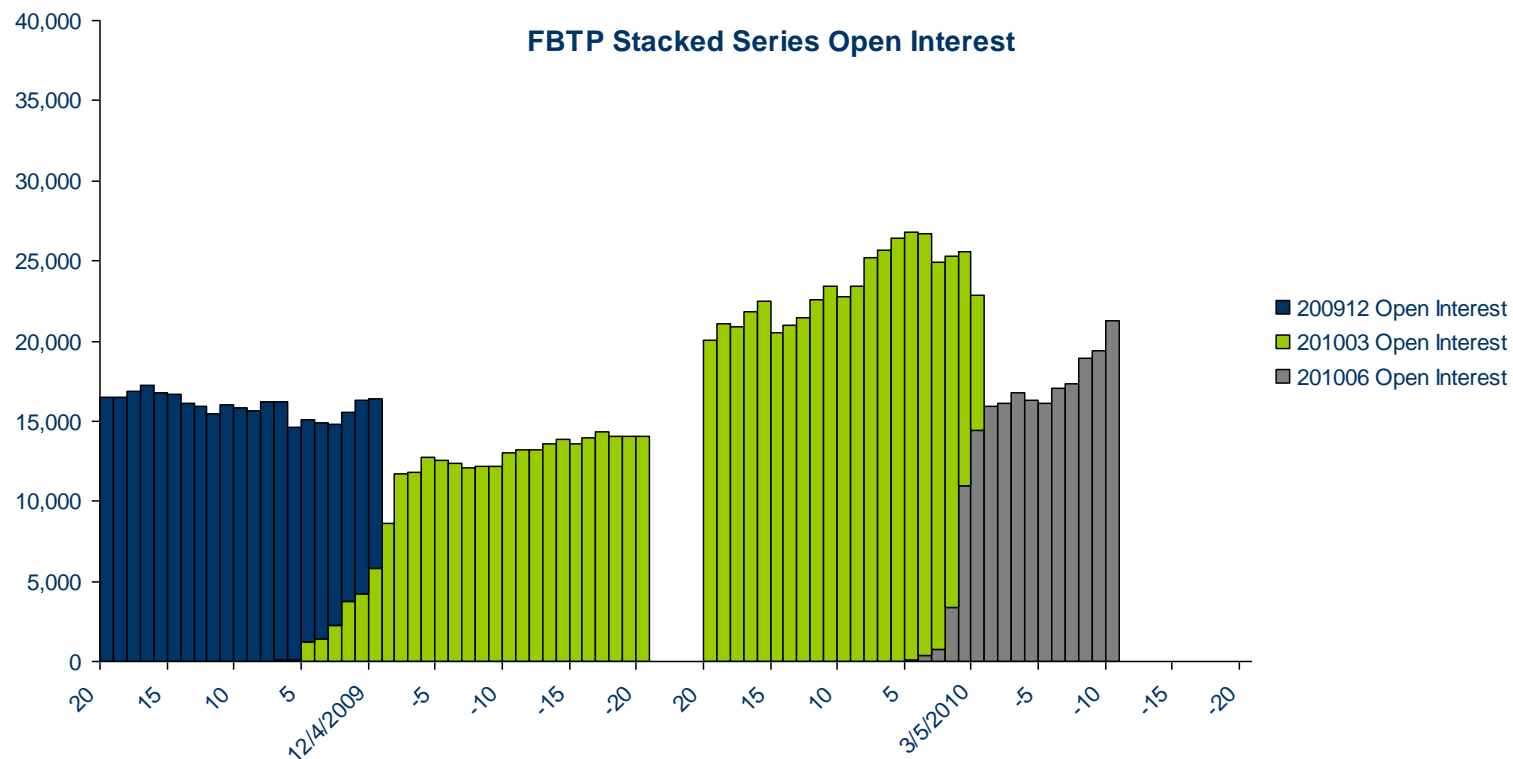
Exch: XEUR Contract: FBTP JUN10 2nd Leg:

Exch	LstPrc	LstQty	High	Low	Curr	LstAuctPrc	PrvStlPrc	NetChg	Volume	Phase	Update	TrdUnit
XEUR	116,09	27	116,10	115,90	EUR	115,95	115,90	0,18	2.656	TRAD	dynamic	1,0000

BidAvg	BidAcc	BidQty	Bid	Ask	AskQty	AskAcc	AskAvg
116,08	43	43	116,08	116,09	31	31	116,09
116,08	47	4	116,07	116,10	11	42	116,09
116,07	71	24	116,06	116,11	3	45	116,09
116,06	224	153	116,05	116,12	59	104	116,11
116,05	275	51	116,04	116,13	150	254	116,12
116,05	280	5	116,03	116,14	20	274	116,12
116,05	284	4	116,01	116,15	1	275	116,12
116,05	286	2	116,00	116,16	4	279	116,12
116,05	289	3	115,99	116,17	4	283	116,12
116,05	291	2	115,98	116,18	4	287	116,12

XEUR 00000 SUCCESSFUL COMPLETION

BTP Futures Roll



BTP Futures Roll Vol & OI

FBTP Volume

Days to Expiration	200912 Expiration		201003 Expiration	
	200912	201003	201003	201006
20	2,856	0	8,840	0
19	1,590	0	6,407	0
18	2,386	0	12,190	0
17	2,213	0	9,757	0
16	2,747	0	7,285	0
15	4,568	0	9,601	0
14	5,059	0	1,902	0
13	3,163	0	2,966	0
12	2,502	0	3,536	0
11	4,553	0	7,078	0
10	5,460	0	4,908	0
9	2,840	10	3,072	0
8	2,642	0	5,606	0
7	2,368	59	7,595	0
6	5,906	41	12,972	0
5	10,373	1,118	9,150	61
4	2,740	231	6,844	371
3	3,542	946	10,303	459
2	5,216	1,707	8,459	2,842
1	4,505	1,544	11,692	8,422
0	6,119	2,696	6,390	6,005

Indicates the next expiring contract volume exceeds front month contract volume

FBTP Open Interest

Days to Expiration	200912 Expiration		201003 Expiration	
	200912	201003	201003	201006
20	16,500	0	20,015	0
19	16,528	0	21,062	0
18	16,860	0	20,934	0
17	17,270	0	21,860	0
16	16,773	0	22,441	0
15	16,628	0	20,546	0
14	16,098	0	21,001	0
13	15,967	0	21,433	0
12	15,478	0	22,542	0
11	16,037	0	23,402	0
10	15,870	0	22,789	0
9	15,597	10	23,435	0
8	16,202	10	25,201	0
7	16,104	68	25,673	0
6	14,472	109	26,380	0
5	13,930	1,192	26,750	49
4	13,531	1,408	26,293	408
3	12,523	2,282	24,224	708
2	11,858	3,702	21,937	3,353
1	12,042	4,233	14,637	10,957
0	10,626	5,787	8,404	14,452

Indicates the next expiring contract open interest exceeds the front month open interest

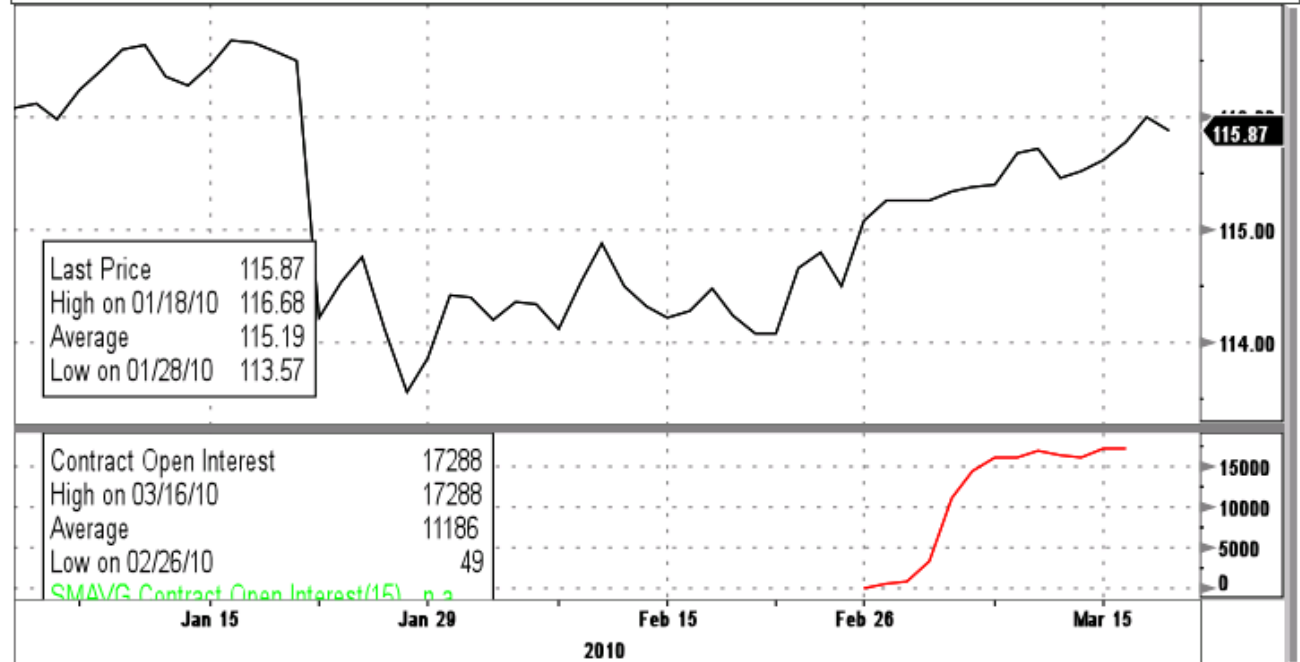
BTP Futures

- We will focus on trading opportunities in the BTP future
 - As a trading vehicle by itself
 - As a spread to other listed futures (Bund, Gilt)
 - As a “proxy” for less worthy credits in Europe

BTP June Future Price History

IKMO ↑ **115.87** -.13 T T 115.86/115.88 T 21x16 ComdtyGP
 DELAY 8:28 Vol 539 Op 116.03 Hi 116.04 Lo 115.84 Prev 116.00

IKMO COMDTY **Advanced** Hide GP - Line Chart Page 1/3
 Range 01/04/10 - 03/18/10 Upper Line Chart Mov. Avgs Currency EUR
 Period Daily Lower Contract OI Mov. Avg 15 Events

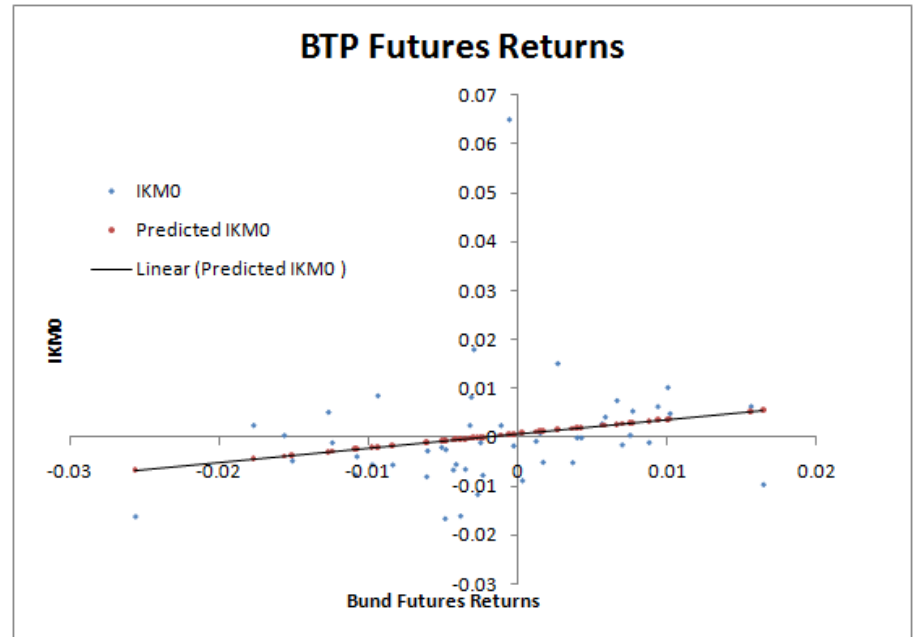


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BTP Future is not the Bund!

	<i>TYM0</i>	<i>RXM0</i>	<i>G M0</i>	<i>IKM0</i>
<i>TYM0</i>	1			
<i>RXM0</i>	0.171208	1		
<i>G M0</i>	-0.09102	0.548745	1	
<i>IKM0</i>	0.03794	0.212991	0.256786	1

Low correlation to other bond futures

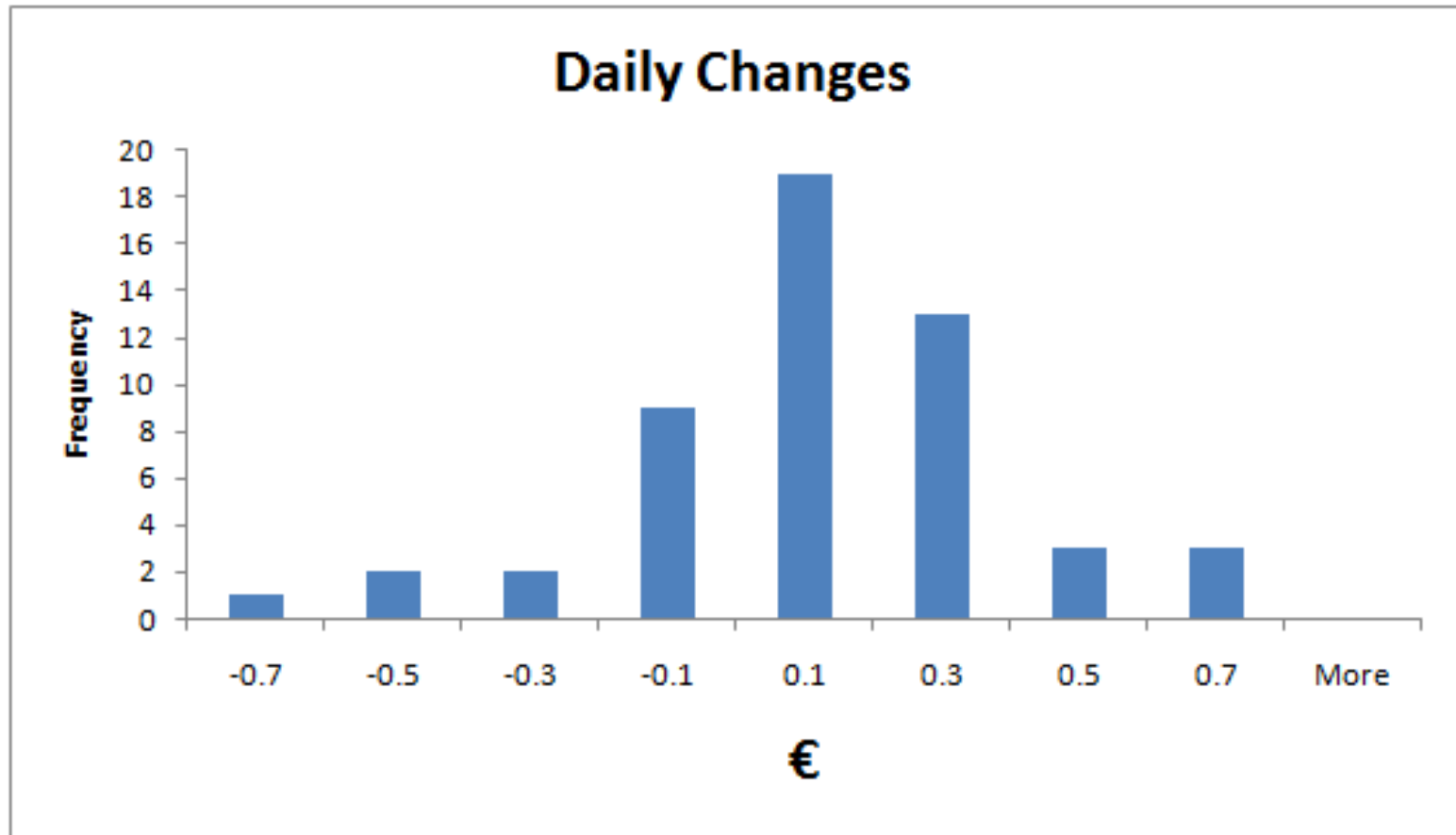


<i>Regression Statistics</i>	
Multiple R	0.212991
R Square	0.045365
Observations	50

Volatility

- Yield volatility of BTP future is about 5%
- Daily volatility should be about $5/16 = 0.3125$
- At a yield level of about 4% this means the yield should change by about $0.3125 \times 0.04 = 0.0125$ or 1.25 basis points per day
- Basis point value is about 0.084 (€ / bp)
- Price volatility is about $0.084 \times 1.25 = 10.5$ cents per day
- Observed average daily range is about 46 cents
- (about right: range $\approx 4 \times$ standard deviation)

BTP Futures Price Changes



A Word of Caution

- The histogram of daily price changes is in line with expectations
- Daily close/close changes are fairly small
- But intraday may be more volatile
- AND over the weekend from
 - 19 January to
 - 22 January
 - The price dropped by €2.37

Sovereign Benchmarks

- Sovereign bonds provide a reference point for corporate issuers
- Most corporate bonds trade at a higher yield than the sovereign
- Interest rate swaps also provide a benchmark
- Reflect AA bank credit
- Sovereign bonds should trade at a lower yield than the interest rate swap (positive TED spread)

Trading Credit

- Sovereign credit is supposed to be “risk-free”
- They can always print money can't they?
- US
 - Maybe
 - Depends on cooperation between President and Congress
- Euro Zone
 - No!
 - European Central Bank can
 - Individual countries can only:
 - Raise taxes
 - Charge fees
 - Issue bonds

Credit Spreads

- When the Euro was introduced in 1999 the result was only one LIBOR rate in the Eurozone
- But sovereign debt trades at a spread to EURIBOR
- EURIBOR Swap Rate – Sovereign Yield is the “TED” spread
- Sovereign yield – EURIBOR is called the Asset Swap Margin

Asset Swap of 10 year German Sovereign Bond



<HELP> for explanation, <MENU> for similar functions.
Curve Source: CMPN

Corp **ASW**

ASSET SWAP CALCULATOR

Page 1 of 3

DEUTSCHLAND REP DBR3 ¼ 01/04/20 101.0200/101.0500 (3.13/3.12) BGN @ 8:09

Currency		Bond			Underlying Curves		
From EUR	To EUR	Buy/Sell	Par Amt	1000	Price Date	EU	EU
		Workout	1/ 4/20 @	100.0000	3/17/10	45<SWDF#>	45
Spot F/X		Swap			Crv Settle	A<B/A/M>	A
1.000		Coupon	Day Count	Freq	3/22/10	STD	STD
Trade Settlement		Fixed	3.28607%	ACT/ACT	Z-Spread		
3/22/10		Floating	0.68982%	ACT/360	-16.5 bp		
		Swap Par Amt(FLT)	1000	M			

Gross Spread Valuation

Implied Value	Money	Spread(bp)
99.6905	-13.6M	= -15.7

Swapped Spread Details

Calculate	Money	Spread(bp)
1: Bond Price	101.0500/ 3.12153%	
Swap Price	100	
2: Swap Rate	Cash Out 1.0500	-10.5M = -12.1 bp
	Bond Cpn 3.2500	-3.1M = -3.6
	Redemption Premium / Discount 0.0000%	0.0 = 0.0
	Funding Spread 0.0 bp	0.0M = 0.0
3: Swapped Spread		-15.7 bp

1 <Go> for X-currency spread summary, 2 <Go> to save, 3 <Go> to update swap crv

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Asset Swap of 10 year BTP



<HELP> for explanation, <MENU> for similar functions.
Curve Source: CMPN

Corp **ASW**

ASSET SWAP CALCULATOR

Page 1 of 3

BTPS BTPS 4 ¼ 03/20 102.9800/103.0800 (3.92/3.91) BGN @ 7:55

Currency		Bond				Underlying Curves		
From EUR	To EUR	Buy/Sell	Par Amt	1000	M	Price Date	EU	EU
		Workout	3/ 1/20 @	100.0000		3/17/10	45<SWDF#>	45
Spot F/X		Swap				Crv Settle	A<B/A/M>	A
	1.000	Fixed	Coupon	Day Count	Freq	3/22/10	STD	STD
Trade Settlement		3/22/10	3.27944%	ACT/ACT	2	Z-Spread		
		Floating	0.87775%	ACT/360	2	62.2 bp		
		Swap Par Amt(FLT)	1000	M				

Gross Spread Valuation

Implied Value	Money	Spread(bp)
108.3896	53.1M =	60.5

Swapped Spread Details

Calculate	Money	Spread(bp)
1: Bond Price	103.0800/ 3.90997%	
Swap Price	100	
2: Swap Rate	Cash Out 3.0800	-30.8M = -35.1 bp
	Bond Cpn 4.2500	83.9M = 95.6
Redemption Premium / Discount	0.0000%	0.0 = 0.0
Funding Spread	0.0 bp	0.0M = 0.0
3: Swapped Spread		60.5 bp

1 <Go> for X-currency spread summary, 2 <Go> to save, 3 <Go> to update swap crv

Calcs use gross pymnts (0% withholding)

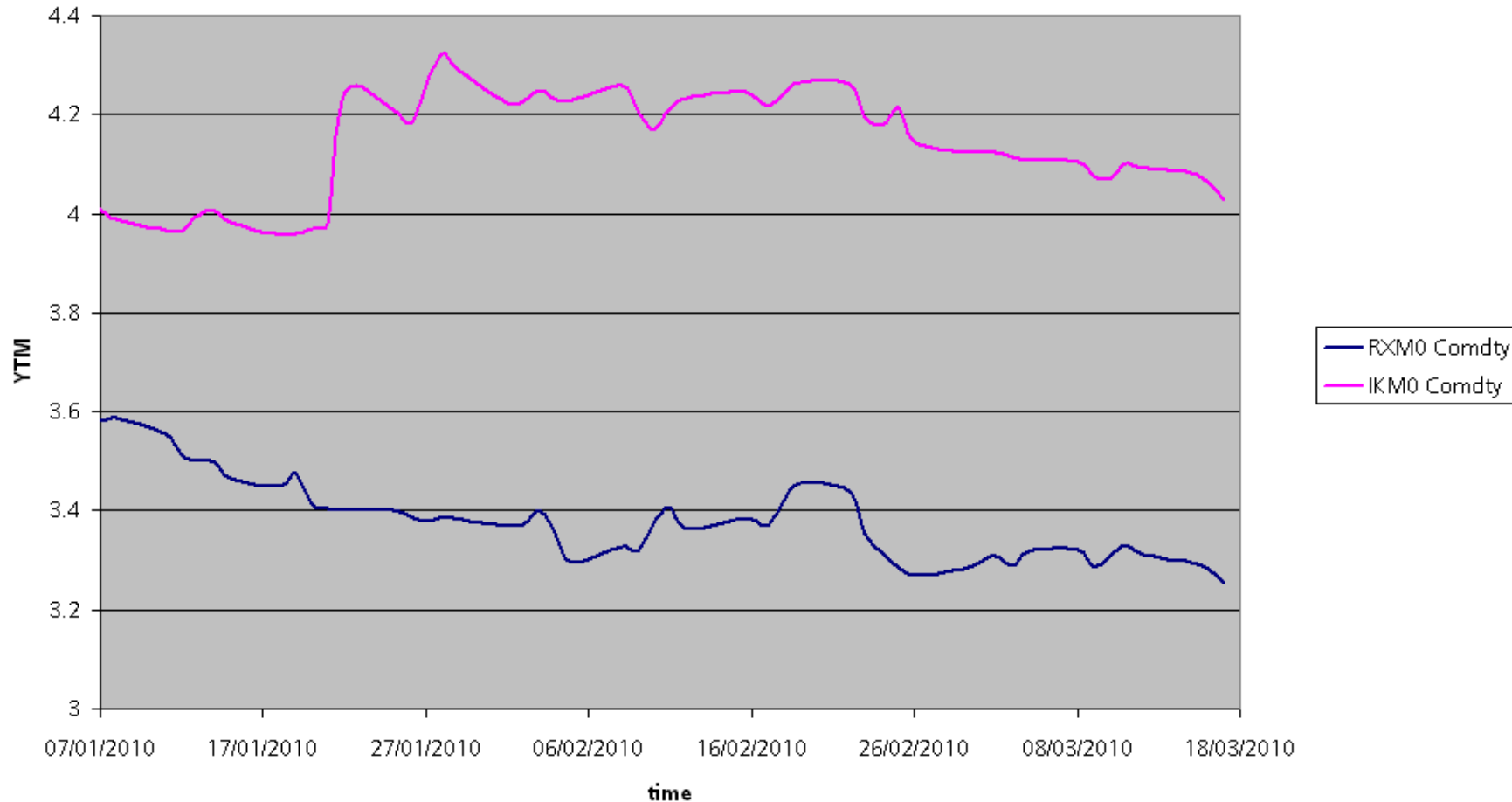
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Italy and Germany

- Germany is the most economically stable country in Europe
- Serves as a benchmark for the Euro bond market
- Italy is not as stable
 - Economically
 - Politically
- This is reflected in the yield spread between their bonds
- This is also reflected in the futures market

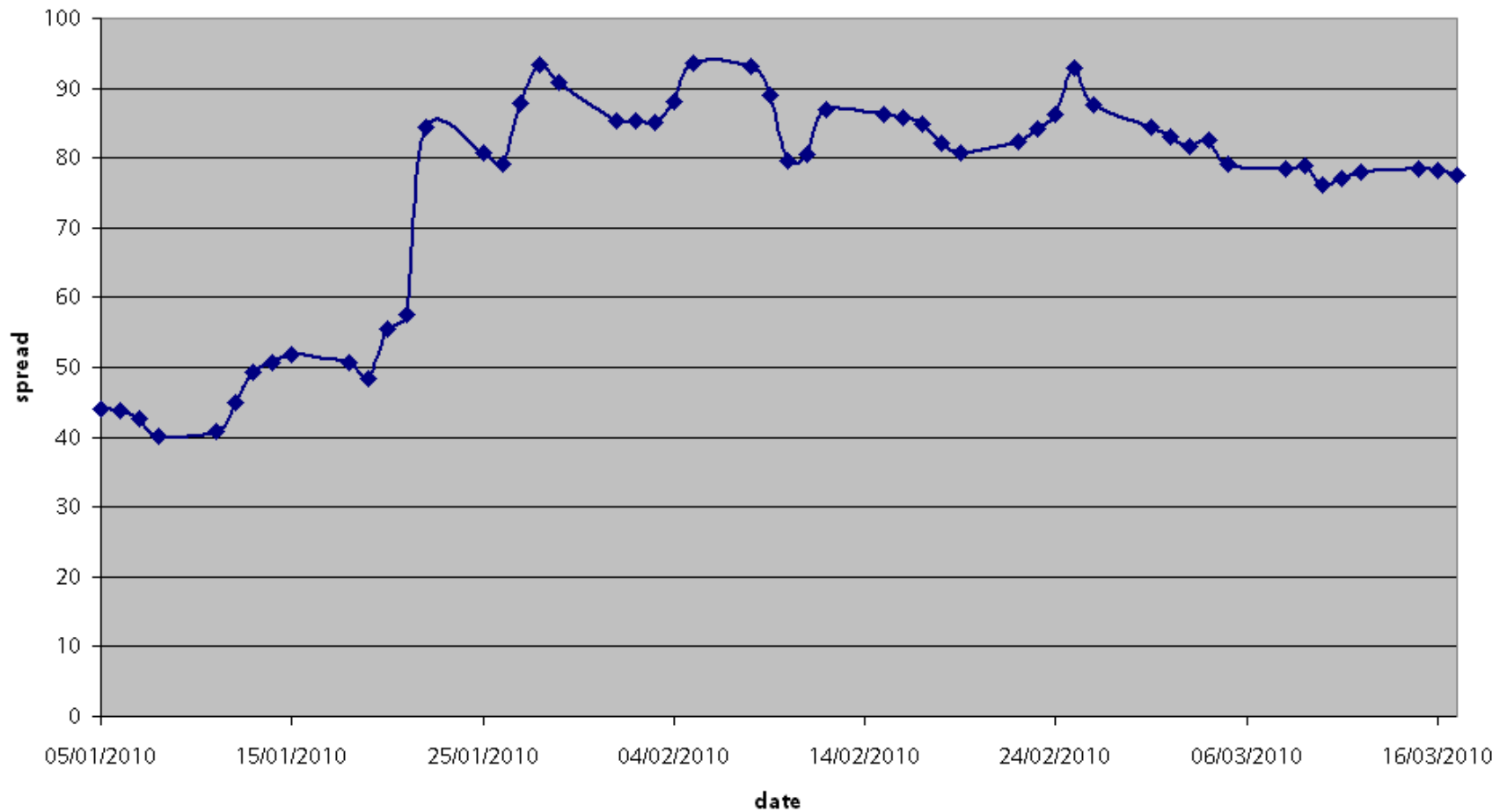
Italian and German Futures Yields

June Futures Yields

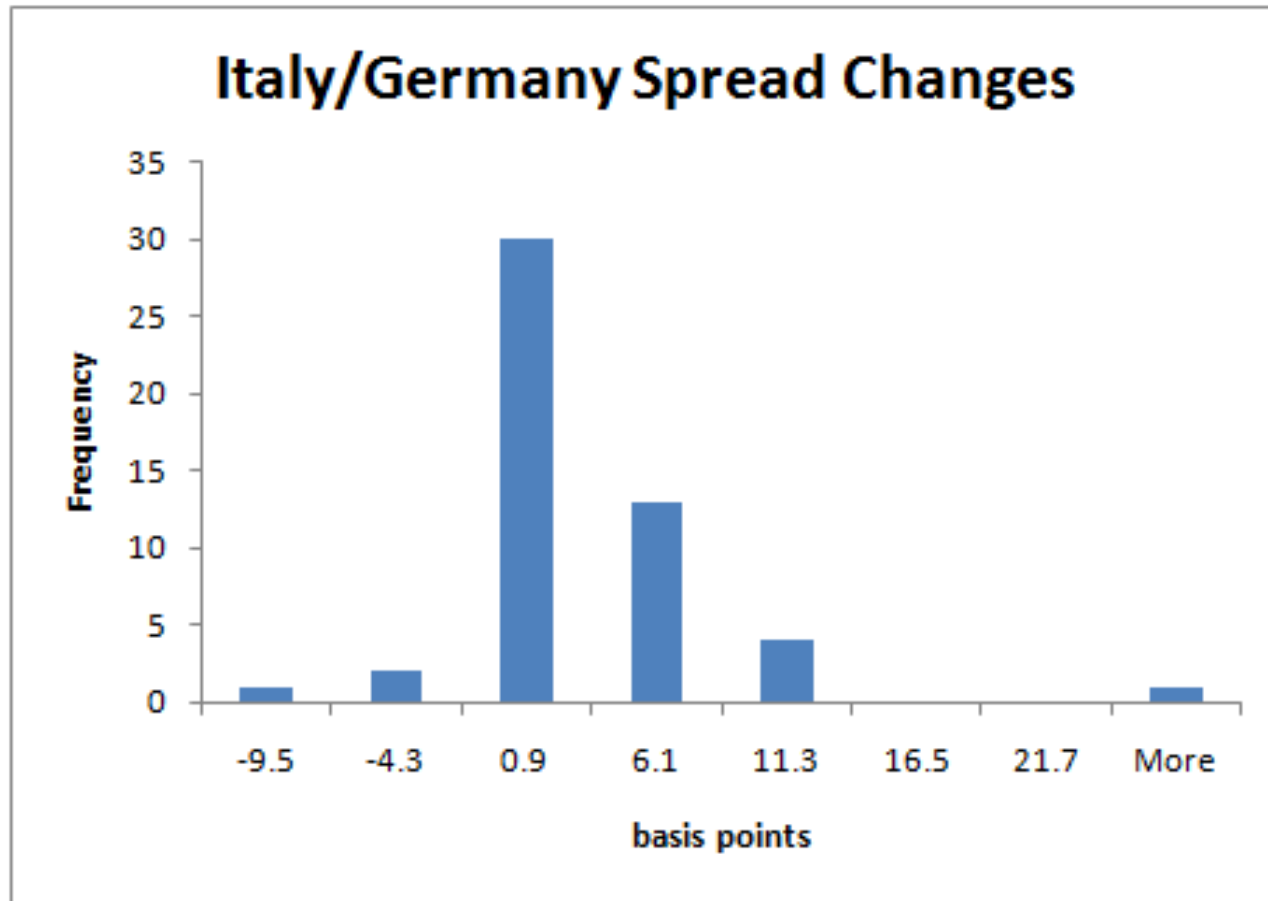


Italy Versus Germany

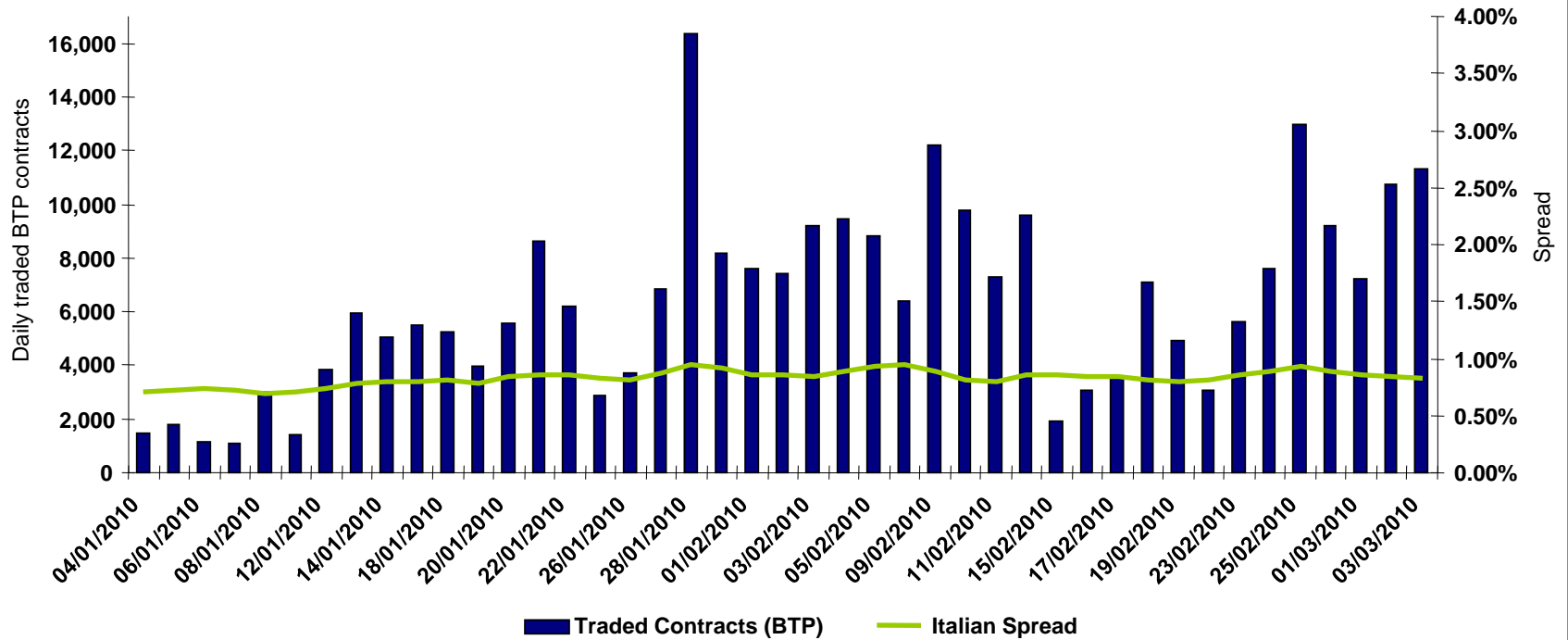
Italy-Germany Spread



BTP Futures Versus Bunds



2010: Italian Spread vs. traded BTP-Futures in 2010



Observations

- Just like the BTP futures themselves:
 - Day to day yield spread changes are modest
 - Average change is about 1 basis point per day
 - BUT the range is wide
 - AND there are some big moves: 10 basis points down and 27 basis points up

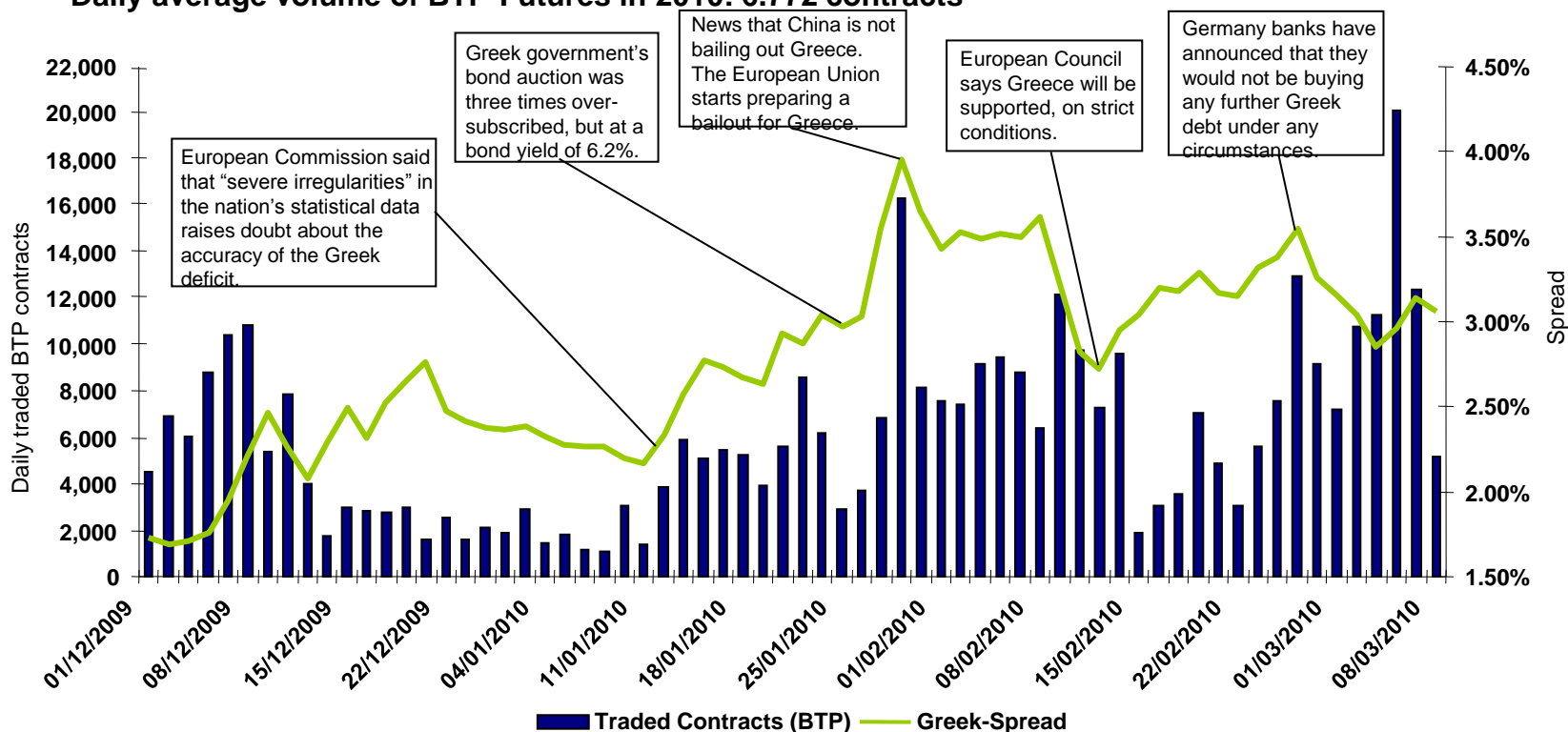
Italy as a “Proxy”

- In the Eurozone only Italy and Germany have futures on their debt
- Other weak (relative to Germany) credits are:
 - Portugal
 - Ireland
 - Greece
- If a credit crisis happens in one of these other countries we may see it flow through Italy as well

Greece must raise €54 billion in 2010 or face default

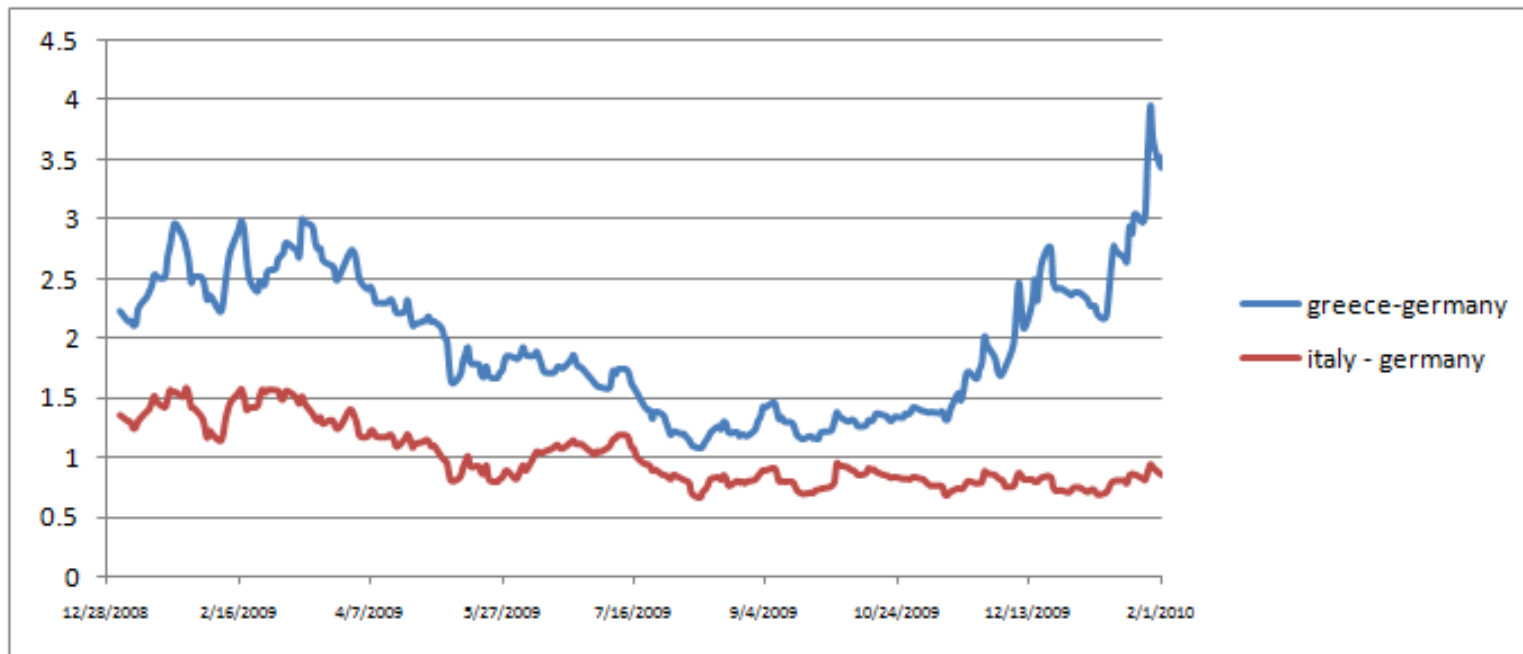
- Correlation between 10 year German-Greek-Spread and traded BTP-Futures is 0.64* in 2010

- Daily average volume of BTP-Futures in 2010: 6.772 contracts

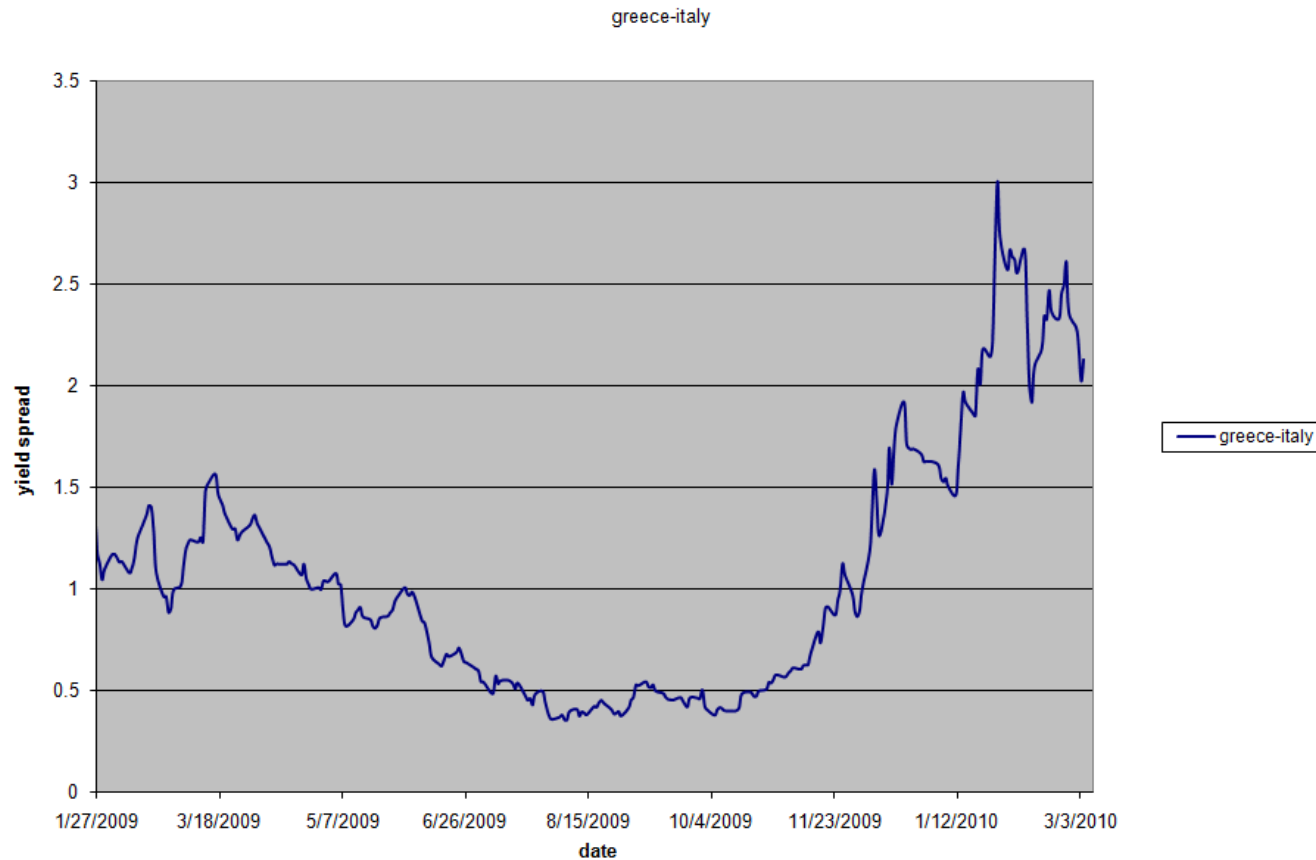


*) Correlation without 03/04/2010
 Source: Deutsche Boerse Group, www.eurointelligence.com

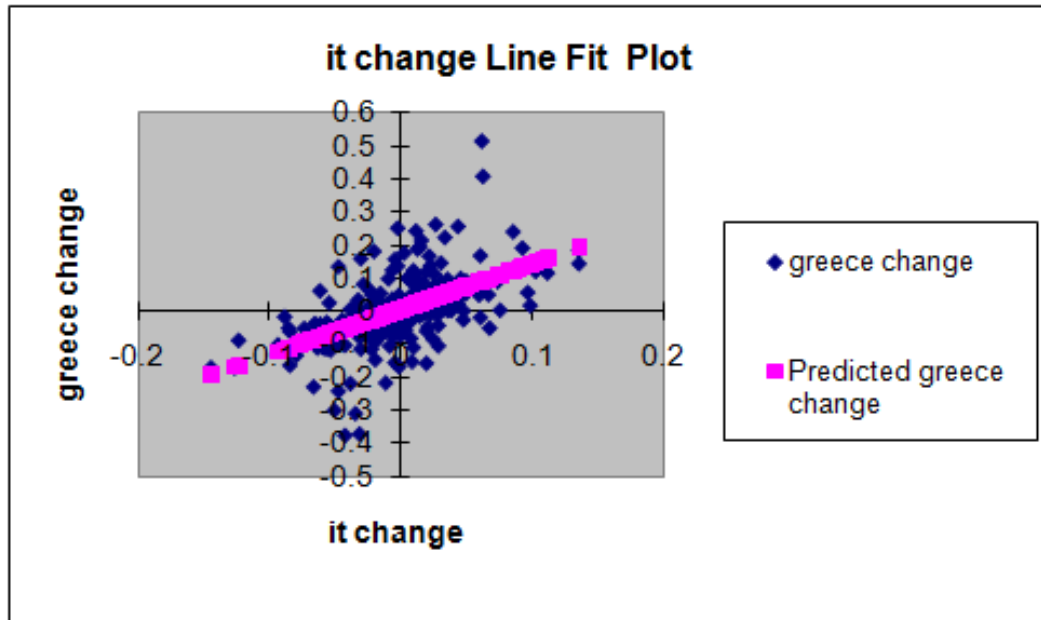
Italy and Greece Yields Versus Germany



Yield Spread: Greece - Italy



Another View



<i>Regression Statistics</i>	
Correlation	0.58
R Square	0.33
Observations	305

- How well could we predict a change in Greece's spread if we know Italy's spread?
- Stronger relationship than with Germany, UK or US

Observations

- In “normal” times Italy and Greece have similar, stable spreads to Germany
- The Greece crisis was specific to Greece
- Cash yields for other sovereigns were not severely affected
- Response was more dramatic in the credit default swap market
- Italy could be “another Greece” but the risk is specific to Italy
- But Italy yields responded significantly to the changes in Greece

Portugal Downgrade 25/03/2010

Fixed Income Derivatives

Euro-Bund Futures (FGBL)

Traded Products

Data for Jun 10
15 minutes delayed
Last Update 11:15:22 CET
on 24.03.2010

Product Type: **FBND**
Underlying Exchange: **n/a**
Trading Currency: **EUR**

[Contract Specifications](#)



Euro-BTP Futures (FBTP)

Traded Products

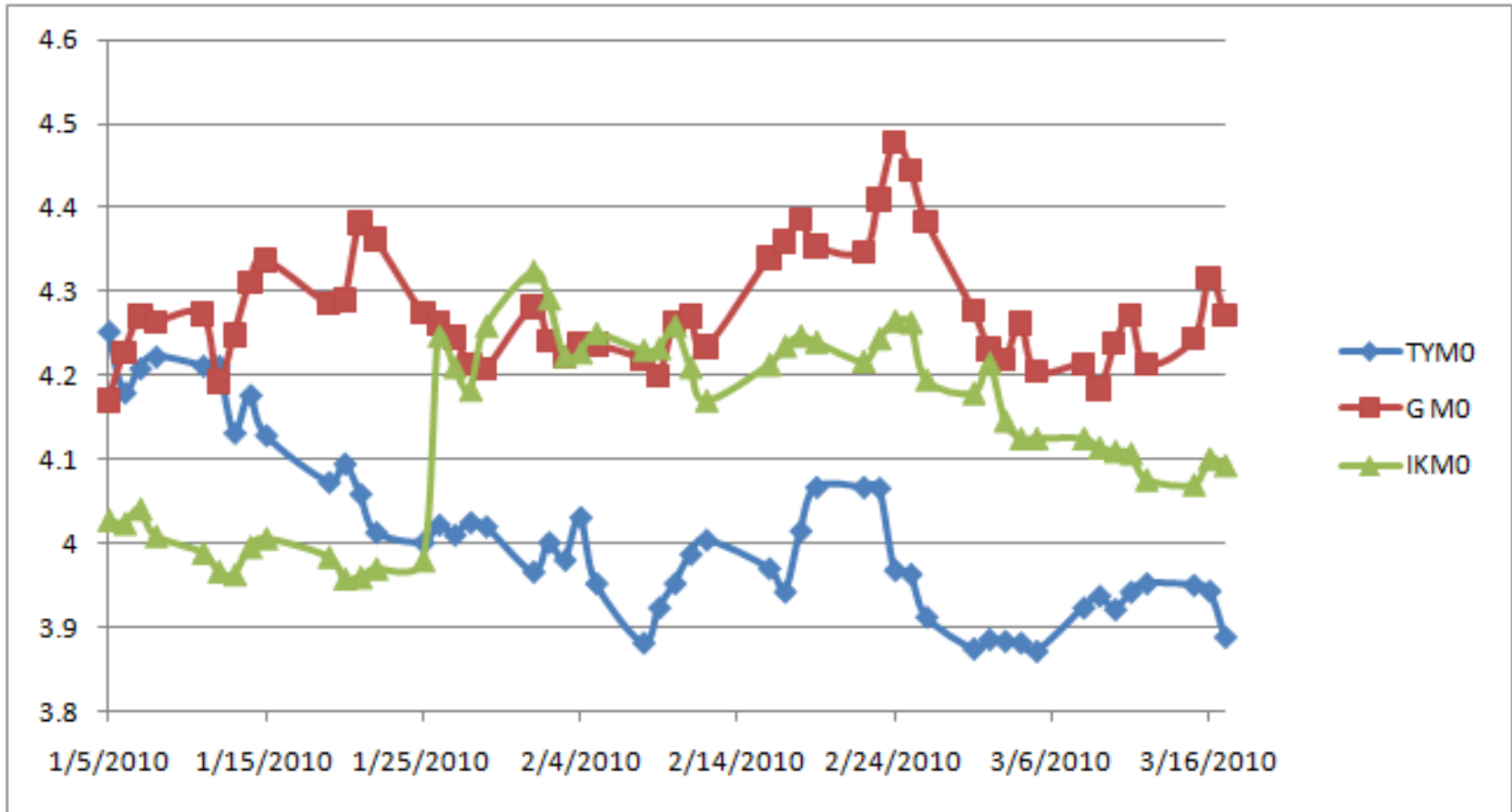
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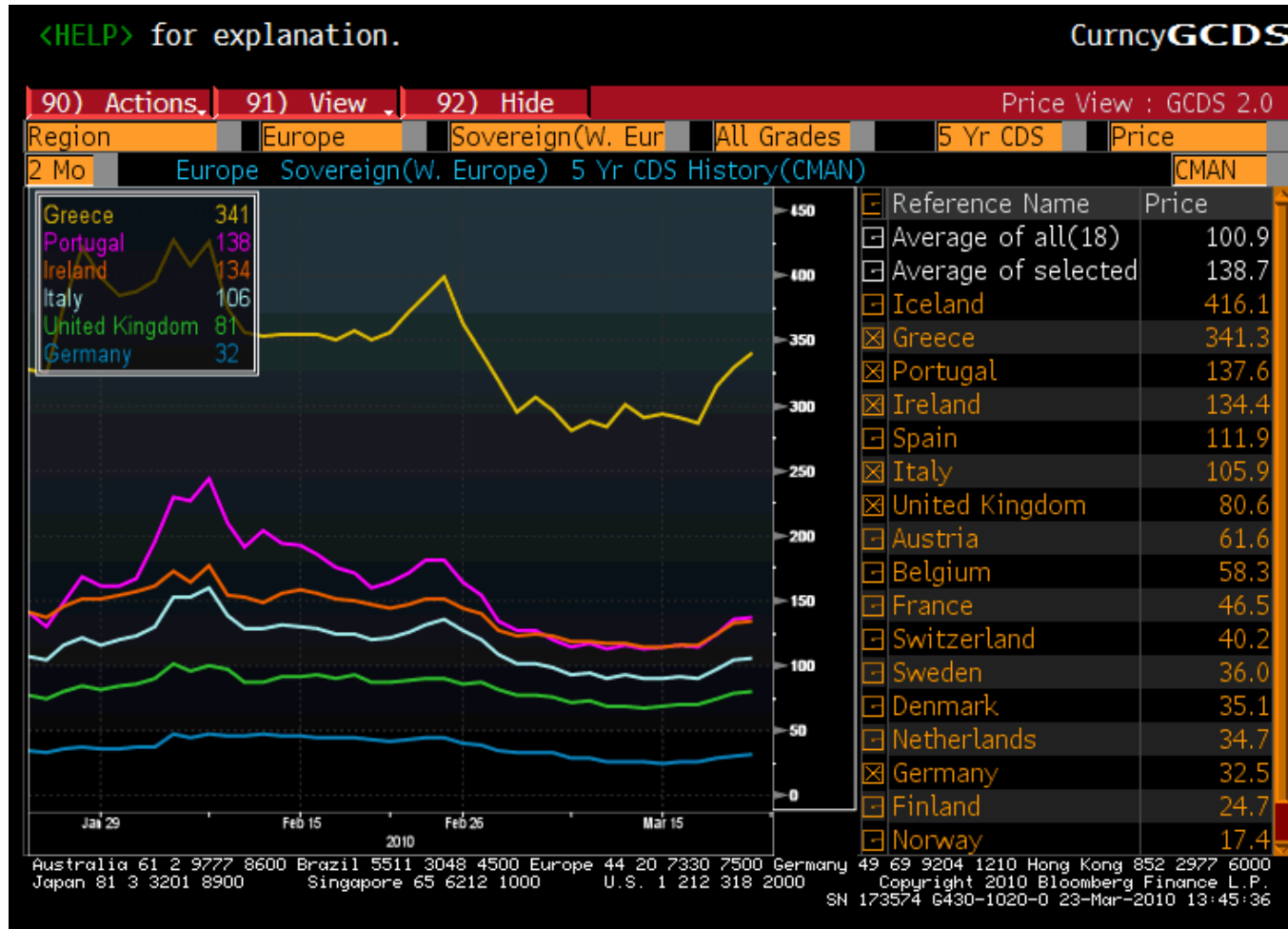
[Contract Specifications](#)



Don't Forget US and UK



Other Relevant Information



Trading Opportunities

- Trading Italy versus Germany as a proxy for European credit is possible but the relationship is moderate
- And trading
 - BTP futures versus Bund futures or
 - BTP futures versus UK Gilt futures or
 - Bund futures versus UK Gilt futures
- Are all potential ways to express relative value views on sovereign credit



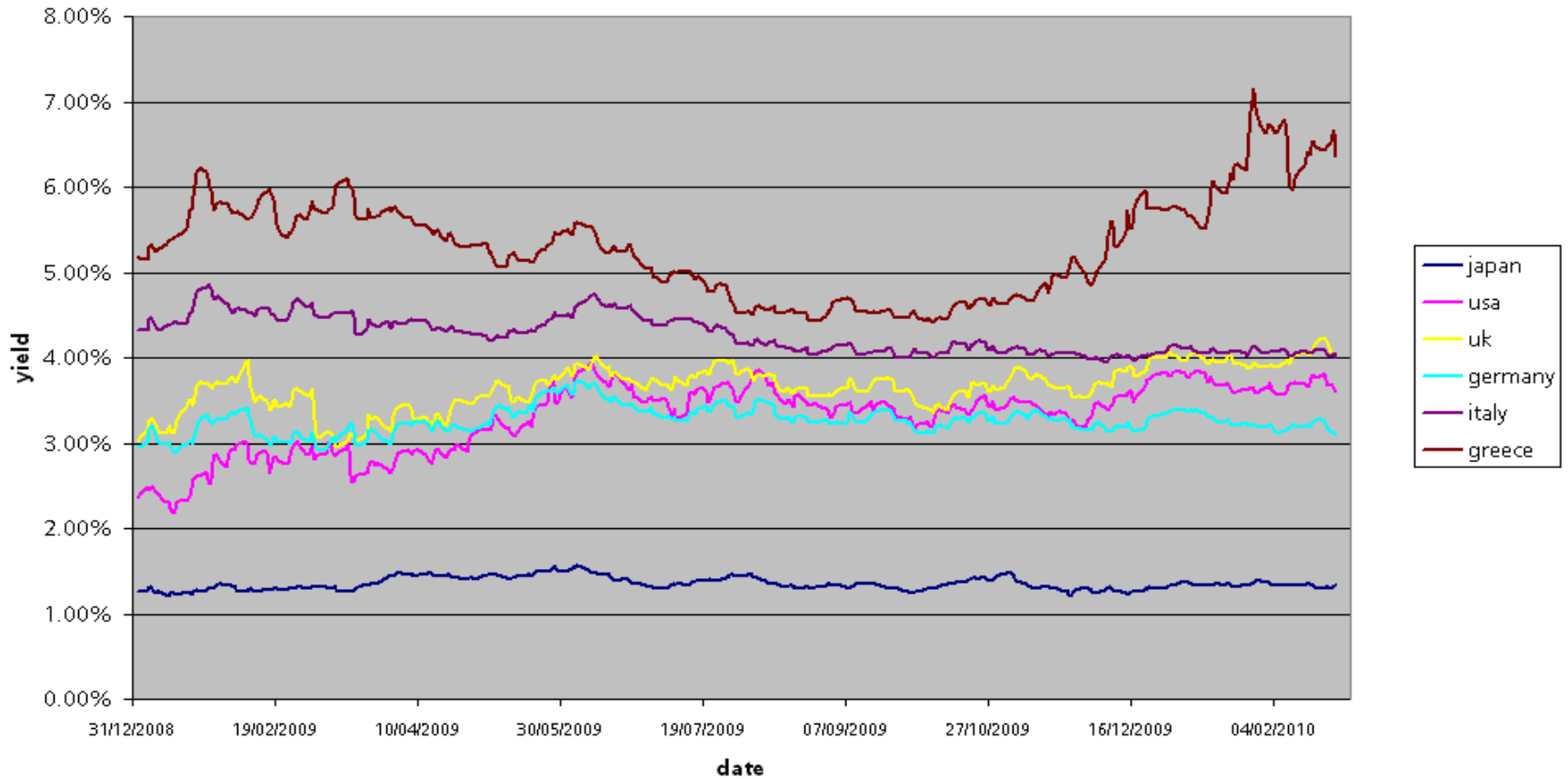
More Uses For Futures

Interest Rate Futures

- Underlying 3 month interest rates
 - USD LIBOR USD1 million CME
 - EURIBOR EUR 1 million Eurex
 - Short Sterling GBP500k LIFFE/Euronext
- Quoted 100 – rate
- 3 month rate starting at expiry
 - H, M, U, Z and serial months (J,K; N,Q;V,X)
- Last maturity available
 - EUR, GBP 5 years
 - USD 10 years
- Can trade
 - Single expiry
 - “package” of consecutive expiries

Recent Prices / Yields

benchmark yields



Investing in Sovereign Debt

- Buy cash bonds
 - Need to fund
 - Maintain duration
 - Manage liquidity
- Typical Bond Portfolio strategy:
 - Buy on-the-run sovereign bond
 - Fund with cash or repo
 - Roll into new issues
- Typical hedge fund strategy:
 - Buy/sell on or off the run bonds
 - Fund in repo/reverse repo
 - Leverage to achieve return objectives

Using Futures

- Buy bond futures
 - Need to invest cash
- Bond portfolio strategy:
 - Deposit cash at LIBOR
 - Buy front month future
 - Roll position just before delivery month
- Duration is maintained
- High degree of liquidity
- Hedge Fund / Prop trading strategy:
 - Buy/Sell futures as an interest rate play
 - Buy/sell futures relative to cash bonds for arbitrage
 - Spread futures across expiries or markets

Investing with Bond Futures

- Buying a bond future is equivalent to:
 - Buy the cash bond
 - Finance in the repo market
 - Collect accrued interest

Synthetic Investment Using BTP

- Invest EUR100,000
- Buy June BTP future
- Hold to June delivery
- Equivalent to:

BTP CTD

<HELP> for explanation, <MENU> for similar functions.
Hit {NUMBER} <GO> to view Historical Basis/Repo

Comdty**DLV**

Cheapest to Deliver

Euro-BTP Future Jun10 **IKMO** 115.83

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Set 3/23/10 Cheapest IRP= -.84

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Trade BOBL Basis

- 18 March 2010
 - Buy DBR 3 $\frac{3}{4}$ 01/04/2015
 - Finance in repo market for 0.59%
 - Receive coupon interest for 79 days
 - Sell BOBL June 2010 Future for 116.40
 - Hold for 79 days
- Potential loss of 0.1000
- Potential gain ?
 - If CTD changes
- Net basis = 0.100
 - Price for the CTD option

Trade BTP Basis

- Buy BTP 4 $\frac{3}{4}$ 2020
- Fund in repo market
- Sell IKM0
- Hold to June delivery
- Potential Loss: ??
- Potential Gain: ??
- What is the option really worth?

What are the Possibilities?

<HELP> for explanation, <MENU> for similar functions.
 Enter all values and hit <GO>.

ComdtyCMS

VIEW **B**
 B-Basis, C-basis Chg
 H-Horizon bond price
 U-BPU
 S-CTD B.P. Spread
 P-P&L points

CTD Scenario Analysis

CTD Basis **0.** dec. Stl **3/23/10** Dlv **6/10/10**

	PARALLEL YIELD SHIFTS (BP)				
	-100	-50	0	50	100
Price:	125.917	121.469	116.980	112.532	108.294
Chng:	+10.087	+5.639	+1.150	-3.298	-7.536
cRisk:	9.10	8.70	9.11	8.68	8.28

IKMO		115.83								
Issue	Price	Src	Yield	Basis	Basis at Contract Horizon					
1) BTPS4 $\frac{1}{4}$ 03/01/20	102.780	BGN	3.947	1.062	.557	.158	.000	.000	.000	
2) BTPS4 $\frac{1}{2}$ 02/01/20	105.110	BGN	3.907	1.208	.537	.189	.082	.133	.179	
3) BTPS4 $\frac{1}{2}$ 03/01/19	106.170	BGN	3.717	1.381	.000	.000	.212	.554	.865	
4) BTPS4 $\frac{1}{4}$ 09/01/19	103.660	BGN	3.820	1.396	.536	.309	.308	.451	.579	
5) BTPS4 $\frac{1}{4}$ 02/01/19	104.540	BGN	3.678	1.607	.299	.290	.490	.816	1.111	

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Asset Swap of 10 year German Sovereign Bond



<HELP> for explanation, <MENU> for similar functions.
Curve Source: CMPN

Corp **ASW**

ASSET SWAP CALCULATOR

Page 1 of 3

DEUTSCHLAND REP DBR3 ¼ 01/04/20 101.0200/101.0500 (3.13/3.12) BGN @ 8:09

Currency		Bond			Underlying Curves	
From EUR	To EUR	Buy/Sell	Par Amt	1000	Price Date	EU EU
		Workout	1/ 4/20 @	100.0000	3/17/10	45<SWDF#>45
Spot F/X		Swap			Crv Settle	A<B/A/M>A
	1.000	Coupon	Day Count	Freq	3/22/10	STD STD
Trade Settlement		Fixed	3.28607%	ACT/ACT		Z-Spread
3/22/10		Floating	0.68982%	ACT/360		-16.5 bp
		Swap Par Amt(FLT)		1000		

Gross Spread Valuation

Implied Value	Money	Spread(bp)
99.6905	-13.6M	= -15.7

Swapped Spread Details

Calculate	Money	Spread(bp)
1: Bond Price	101.0500/ 3.12153%	
Swap Price	100	
2: Swap Rate	3.28607% Bond Cpn 3.2500	
Redemption Premium / Discount	0.0000%	
Funding Spread	0.0 bp	
3: Swapped Spread		-15.7 bp

1 <Go> for X-currency spread summary, 2 <Go> to save, 3 <Go> to update swap crv

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000
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SN 503627 6625-413-3 17-Mar-2010 08:09:27

Asset Swap of 10 year BTP



<HELP> for explanation, <MENU> for similar functions.
Curve Source: CMPN

Corp **ASW**

ASSET SWAP CALCULATOR

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BTPS BTPS 4 ¼ 03/20 102.9800/103.0800 (3.92/3.91) BGN @ 7:55

Currency		Bond				Underlying Curves		
From EUR	To EUR	Buy/Sell	Par Amt	1000	M	Price Date	EU	EU
		Workout	3/ 1/20 @	100.0000		3/17/10	45<SWDF#>	45
Spot F/X		Swap				Crv Settle	A<B/A/M>	A
	1.000	Fixed	Coupon	Day Count	Freq	3/22/10	STD	STD
Trade Settlement		Floating	3.27944%	ACT/ACT	2	Z-Spread		
3/22/10		Swap Par Amt(FLT)	0.87775%	ACT/360	2	62.2 bp		

Gross Spread Valuation

Implied Value	Money	Spread(bp)
108.3896	53.1M =	60.5

Swapped Spread Details

Calculate	Money	Spread(bp)
1: Bond Price	103.0800/ 3.90997%	
Swap Price	100	
2: Swap Rate	Cash Out 3.0800	-30.8M = -35.1 bp
	Bond Cpn 4.2500	83.9M = 95.6
Redemption Premium / Discount	0.0000%	0.0 = 0.0
Funding Spread	0.0 bp	0.0M = 0.0
3: Swapped Spread		60.5 bp

1 <Go> for X-currency spread summary, 2 <Go> to save, 3 <Go> to update swap crv

Calcs use gross pymnts (0% withholding)

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2010 Bloomberg Finance L.P.
SN 503627 6625-413-1 17-Mar-2010 07:56:32

How to Use Futures

- You think Italian credit will improve relative to German credit
 - Buy BTP M0 future
 - Sell DBR M0 future
 - Earning +60 to swap rate
 - Paying -17 to swap rate
- Profit if the spread narrows
- You think Italian credit will get worse relative to German credit
 - Sell BTP M0
 - Buy DBR M0
- Profit if spread widens



Appendix: BOND BASIS

Forward Price

- 10 year bond
- 5% coupon
- Price = 100
- Funding rate = 2%
- Borrow 100
- Buy bond
- Hold for 90 days
- Forward price

$$F = 100 + 100 \times 0.02 \times 90 / 360 - 100 \times 0.05 \times 90 / 360$$

$$F = 99.25$$

Terminology

- 2% is the

- Repo rate
- Breakeven repo rate
- Implied repo rate

- 99.25 is the

- Forward price
- Breakeven forward price

Bond Basis

- Buy Bond
- Sell Conversion Factor number of Futures
- Cash Price – Futures Price x Conversion Factor
 - Gross Basis
- Forward price – Futures Price x Conversion Factor
 - Net basis

Basis Trading

- **Buy the Basis**

- Buy Cash Bond
- Fund in Repo market
- Sell futures

- **Sell the Basis**

- Sell the cash bond
- Borrow the cash bond in reverse repo
- Buy Futures

How high can the future trade in expiry month?

• **Delivery Month**

- Cash bond price = 105
- Cash bond has conversion factor of 1.20
- $105/1.20 = 87.50$ is the converted price

• **What if $F = 90$?**

- Buy the cash bond
- Sell the future
- File notice of delivery
- Pay 105
- Receive $1.20 \times 90 = 108$
- Risk-free arbitrage of 3
- Will not happen!

How high can the future trade before expiry month?

• **Before Delivery Month**

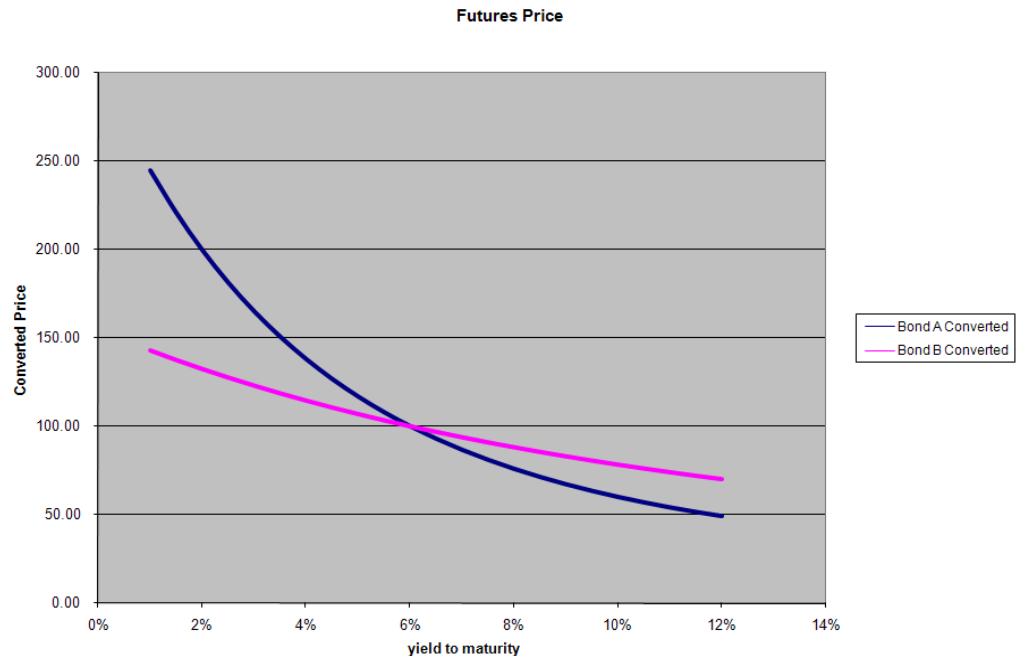
- Cash bond price = 105
- Forward price = 102
- Cash bond has conversion factor of 1.20
- $102/1.20 = 85.00$ is the converted forward price

• **What if $F = 87.50$?**

- Buy the cash bond
- Finance in repo
- Sell the future
- Wait until expiry
- Pay 102
- Receive $1.20 \times 87.5 = 105$
- Risk-free arbitrage of 3
- Will not happen!

Futures Price

- Must always be less than the lowest converted price of any deliverable bond
- Bond A
 - coupon = 4%
 - maturity = 30 years
- Bond B
 - coupon = 8%
 - maturity = 15 years



Cheapest to Deliver

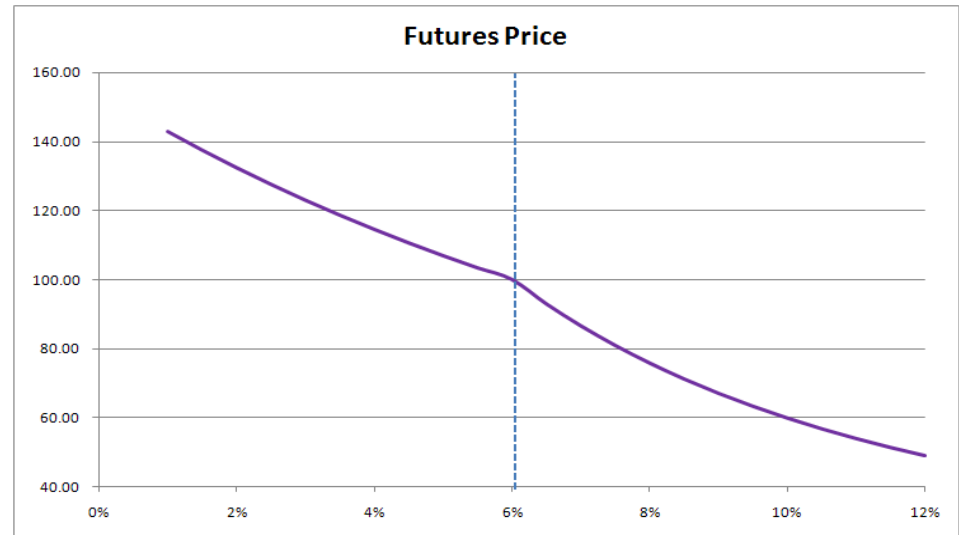
- Net Basis = Cost to Deliver the Bond
- = Forward Price – $F \times CF$

- Below 6% Bond B is the “cheapest to deliver”

- Above 6% Bond A is the “cheapest to deliver”

- 6% is the “switching” point

- Switching point depends on
 - repo rate
 - yield spreads
 - yield volatility



The Switching Option

- Buy the basis of the cheapest to deliver
- net basis = 1 (for example)
- Later the cheapest to deliver bond changes
- Your bond's basis increases to 3 (for example)
- You sell your bond, buy back your futures
- profit = $3 - 1 = 2$
- Cost to Deliver = Option Premium

The Bottom Line

- Buying the basis includes buying the switching option and all other options in the short future
- Buying the basis as a hedge to a long position incurs an extra cost because of these options
- Selling the basis implies selling the options
- Selling the basis to replace a long position with futures receives the option premium as a benefit

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