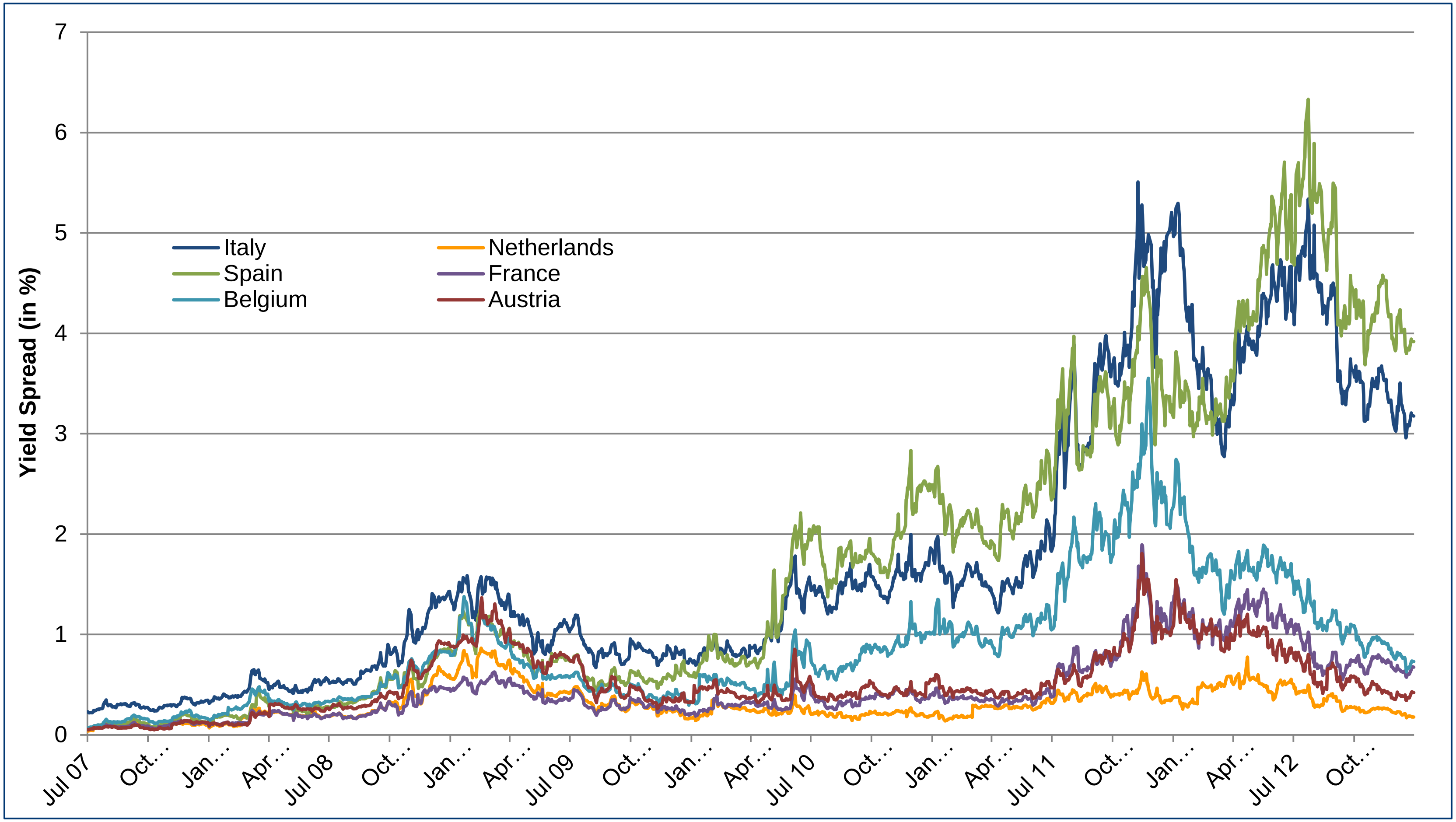
China Europe Derivatives Market Forum

Eurex Benchmark Futures – Increasing the Efficiency of Fund Management & Generating Alpha

Beijing, 18 - 19 April 2013

eurex

Eurozone governments 10-year bond yield spreads over Germany since 2007 – Alpha or Beta opportunity?



Agenda

- Introduction – Eurex benchmark futures
- Increasing the efficiency of fund management – making market Beta more cost effective
- Generating Alpha

Introduction – Eurex benchmark futures

By providing a cost effective and leverage access to 'market beta' in a number of asset classes using liquid Eurex benchmark futures contracts, fund management becomes more efficient as portfolio managers are able to move or create new investments across a range of asset classes quickly and effortlessly.

Listed		Equity	Equity Index		Interest Rates		Dividend & Volatility
	Euro		EURO STOXX 50®	SMI®	Euro-Schatz	One-Month EONIA	EURO STOXX 50® Dividend
			DAX®	OMXH25	Euro-Bobl	Three-Month EURIBOR	EURO STOXX® Select Dividend 30
			EURO STOXX / STOXX ® Europe Large	MSCI Japan	Euro-Bund	Euro-Buxl®	DivDAX® Dividend
			EURO STOXX / STOXX ® Europe Mid	MSCI Russia	Euro-BTP		SMI® Dividend
			EURO STOXX / STOXX ® Europe Small	SENSEX	Euro-OAT		DAX® Price Index Dividend
	GBP		EURO STOXX ® Sector Index	Kospi			VSTOXX®
	USD		MDAX ® Mid Cap	TecDAX ®			Individual dividend on EURO STOXX 50® components
	CHF						

Increasing the efficiency of fund management – making market Beta more cost effective

Increasing the efficiency of fund management

Applications:

- Portfolio overlay
- Adjusting Portfolio Duration / Beta
- Creating Synthetic cash market instruments – Duration Targeting
- Benefits of adding equity volatility to an equity portfolio

Portfolio overlay

Portfolio overlay allows a portfolio manager to quickly move investment from one asset class to another whilst leaving the initial portfolio intact. Once the investment strategy has run its course, the portfolio manager would unwind the portfolio overlay position returning to the core investment portfolio position. The introduction of the Euro-BTP and OAT Futures to Eurex's existing suite of European benchmark fixed income futures has increased the fund managers' possibilities in effecting changes in portfolio asset allocation within different European government bond markets as well as being able to switch asset allocation to overseas bond markets.

Case Study:

A fund manager has a Euro 100 million European bond portfolio in core i.e. German European government bonds and wishes to switch 30% of the portfolio into Italian government bonds as he feels that the yield spread over Germany is at its widest and is anticipating outperformance in Italian bonds relative to core European bonds. The current duration of the portfolio is 7.5 years.

Portfolio overlay

Solution:

1. Calculate the number of Eurex Euro-Bund Futures to be sold to reduce the core European bond portfolio by 30%:

(Duration x Investment x 0.0001) / BPV* Euro-Bund Futures =

(7.5 x €30 million x 0.0001) / €111.40 = 201.96 ~ 202 Euro-Bund Futures

BPV* of a bond futures is BPV* CTD/CF ctd which is currently for the Euro-Bund Futures is (0.0859/0.770614) = 0.1114 or 11.140 futures ticks which is €114.40.

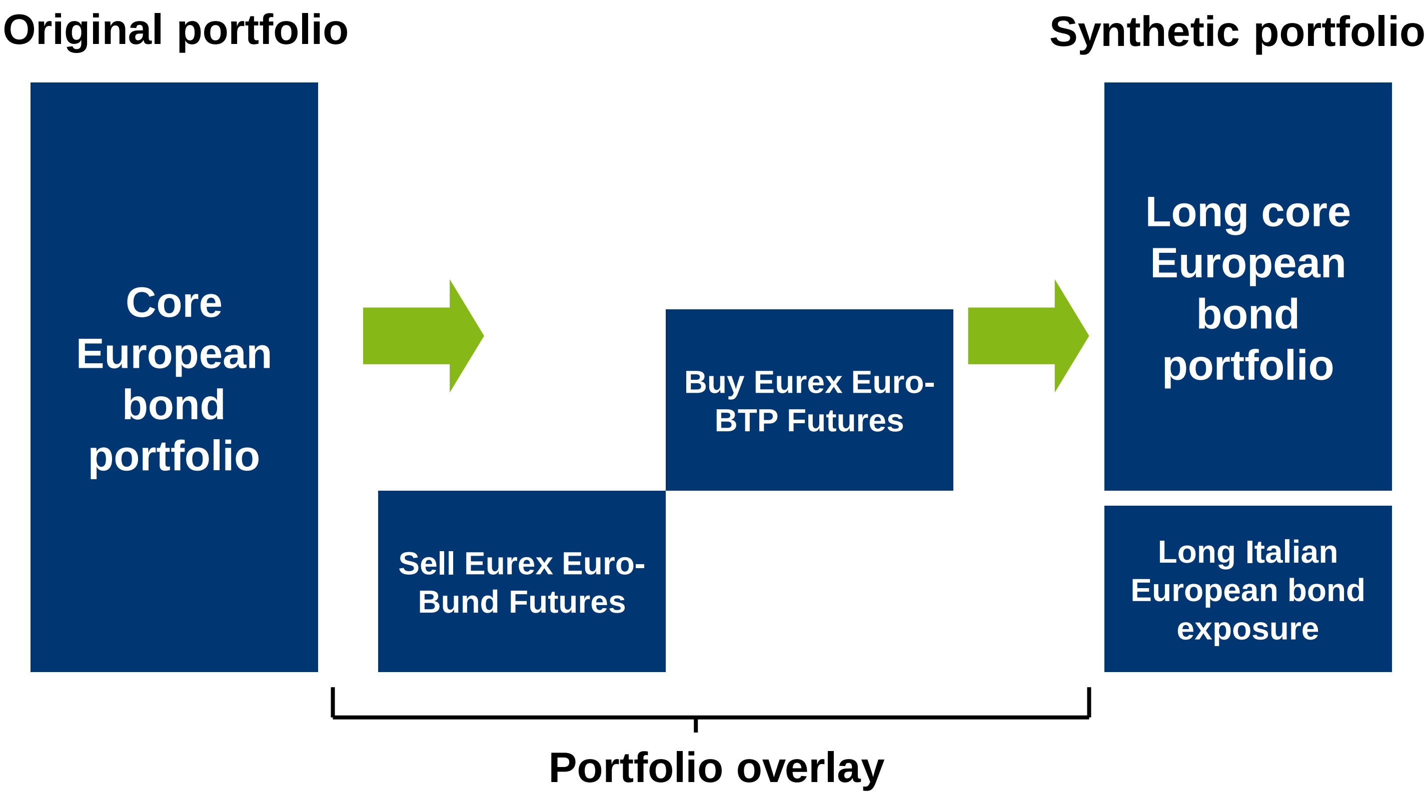
2. Calculate the BPV* weighted ratio of Euro-BTP Futures to Euro-Bund Futures:

The BPV* of the Euro-BTP Futures, using the same calculation, is €76.82 .
Therefore, the ratio Euro-BTP Futures to Euro-Bund Futures is: 1.0 BTP: 0.69 Bund.

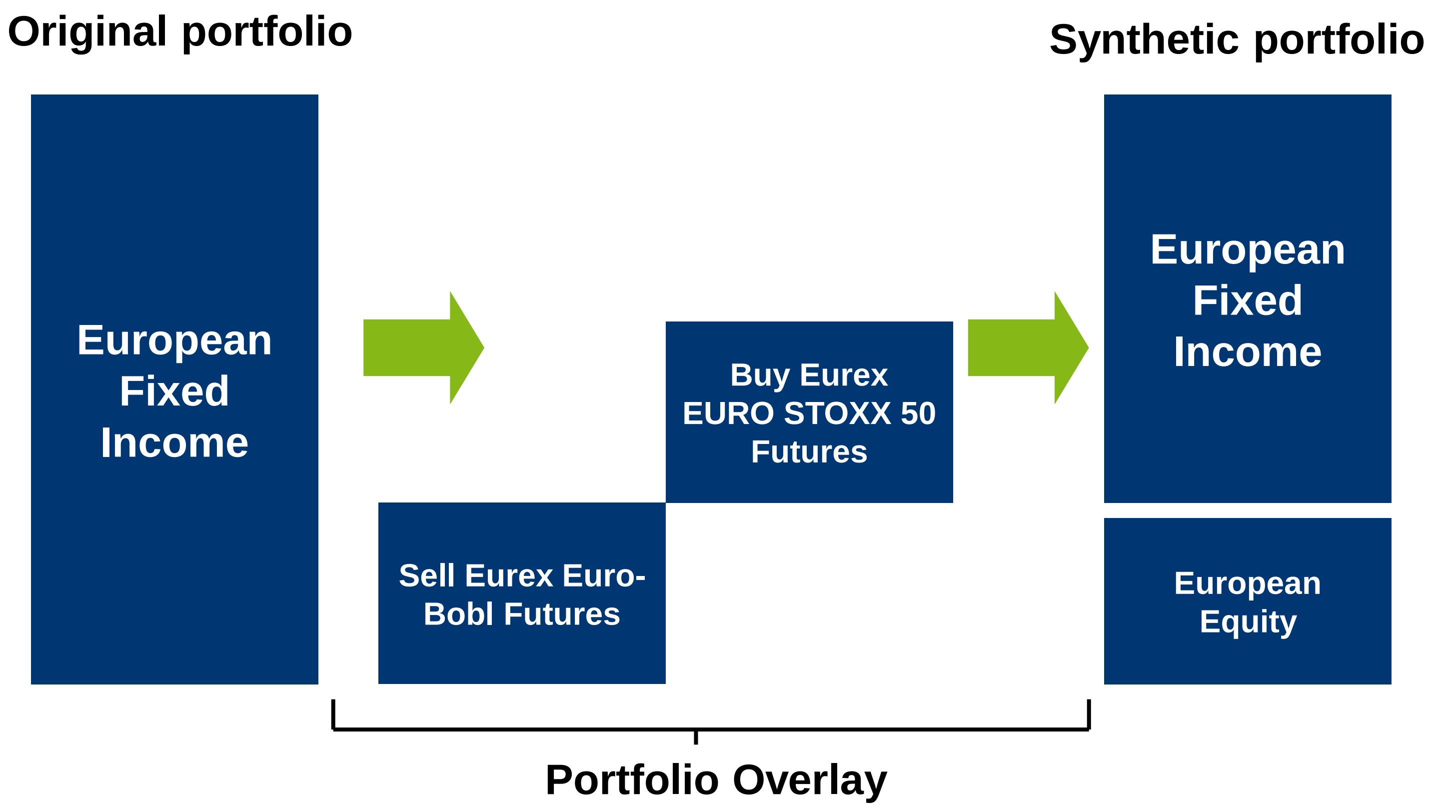
The fund manager, therefore, ***Sells 202 Eurex Euro-Bund Futures / Buys 293 (i.e. 202 / 0.69) Euro-BTP Futures*** in a portfolio overlay strategy to synthetically switch 30% of the investment portfolio from German government bonds to Italian government bonds.

* BPV is the basis point value i.e. value of an .01 change in yield. Value will change as yield levels change.

Portfolio overlay – changing the composition of a bond portfolio



Portfolio overlay - switching investments from European fixed income to European equity



Adjusting portfolio duration

Case Study:

A fund manager has a €100 million European benchmark government bond portfolio and has become very positive to the outlook to European bond market and wants to increase exposure and decides to increase portfolio duration from its current 5.0 years to 8.0 years.

The alternatives facing the fund manager are either to switch out of the current bond portfolio to longer duration bonds OR to overlay the current bond holding with Eurex Euro-Bund Futures.

Adjusting portfolio duration

Solution:

First, calculate the BPV of the current portfolio:

Current Portfolio BPV = Portfolio Duration * Portfolio Value * 0.0001 =

5.0 * €100,000,000 * 0.0001 **= €50,000**.

Second, calculate Portfolio BPV with the higher portfolio duration target:

Target Portfolio BPV = 8.0 * €100,000,000 * 0.0001 = **€80,000**.

Finally, calculate the appropriate number of Eurex Euro-Bund Futures to reach the target portfolio duration:

Number of Eurex Euro-Bund Futures to adjust portfolio duration =

Target Portfolio BPV – Current Portfolio BPV / BPV Euro-Bund Futures

(where BPV Euro Bund future = BPVctd / CFctd)

(BPV Euro-Bund Futures = €111.40)

Therefore, the number of Euro-Bund Futures that a Portfolio Manager of a €100mln. benchmark European bond portfolio buys to increase portfolio duration from 5years to 8years is (€30,000 / €111.40) 269 Euro-Bund Futures contracts.

Adjusting portfolio duration - overview

Benefits:

- No disruption to the existing portfolio when bond futures are overlaid with the existing bond holdings
- Smaller capital outlay
- Quicker to attain portfolio duration target

Creating synthetic cash instruments – Duration Targeting

Case Study:

A pension fund manager has €25 million to invest and wants to achieve a specific portfolio modified duration target investment of 18 years. The Eurex Euro-Buxl® Futures contract is an ideal instrument to create synthetic long duration investments. The deliverable bonds for the Euro-Buxl® Futures contract is 24 to 35 years – currently the June 2013 delivery basket consists of bonds with maturities between 24 and 30 years to maturity. The current cheapest to deliver ('CTD') DBR 4.00% July 2039 for the June 2013 Euro-Buxl® futures contract, has a duration of 17.63 years, very close to the duration target for the pension fund manager.

Solution:

The number of Euro-Buxl® Futures contracts to buy to create a €25 million nominal synthetic fixed income investment with a specific modified duration of 18 years is determined by the following formula:

Target Duration * Investment * 0.0001 / BPV Euro-Buxl® Futures
(BPV Euro-Buxl® Futures = BPV CTD / CF ctd = 0.2470 / 1.039963 = 0.2375 = €237.5)

= (18 * €25million * 0.0001) / (€237.5) = 189.47 ~ 189 Euro-Buxl® futures contracts.

The pension fund manager buys 189 Euro-Buxl® Futures to create a synthetic €25 million 18 years duration target investment.

Volatility as an asset class?

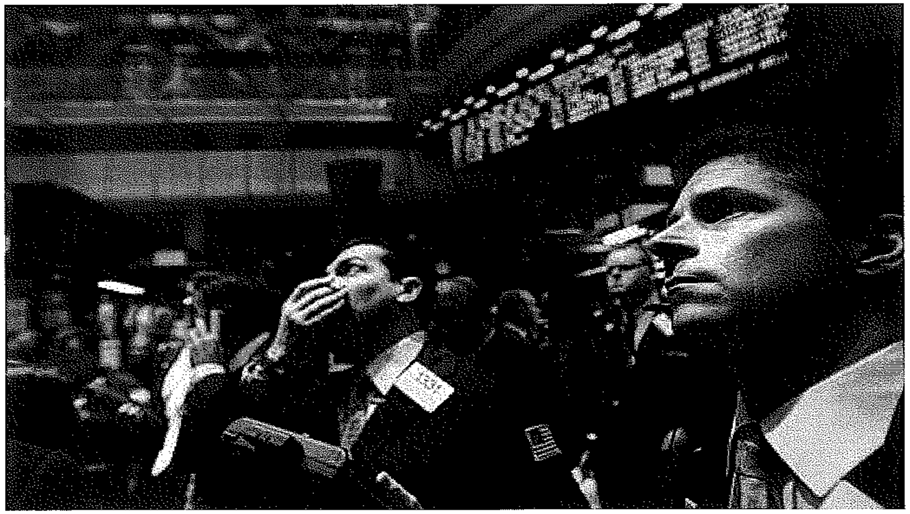
THE WALL STREET JOURNAL.
WSJ.com

THE SATURDAY ESSAY | November 16, 2012, 8:34 p.m. ET

Learning to Love Volatility

In a world that constantly throws big, unexpected events our way, we must learn to benefit from disorder, writes Nassim Nicholas Taleb.

By NASSIM NICHOLAS TALEB

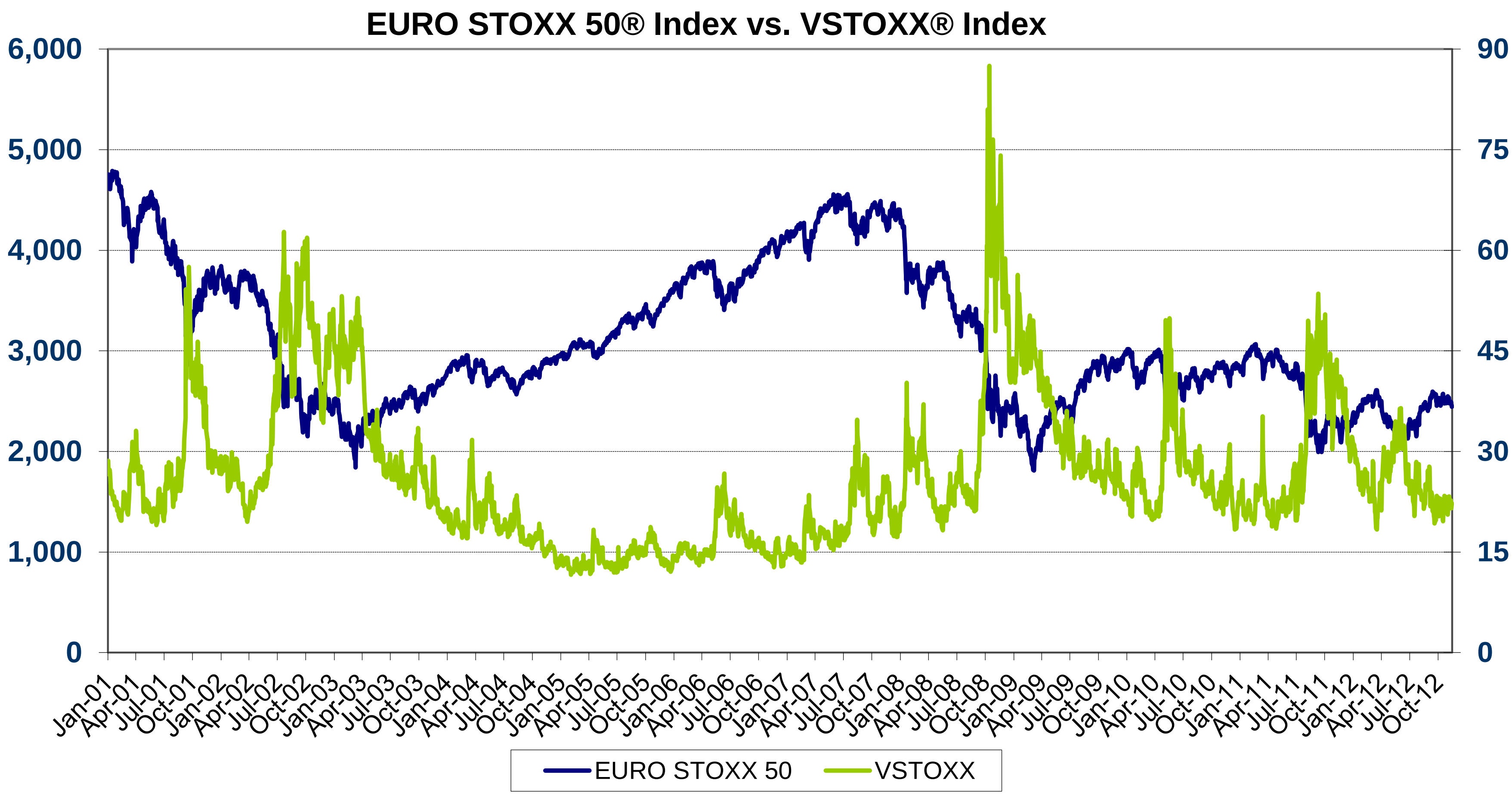


Getty Images

Traders on the New York Stock Exchange in 2008

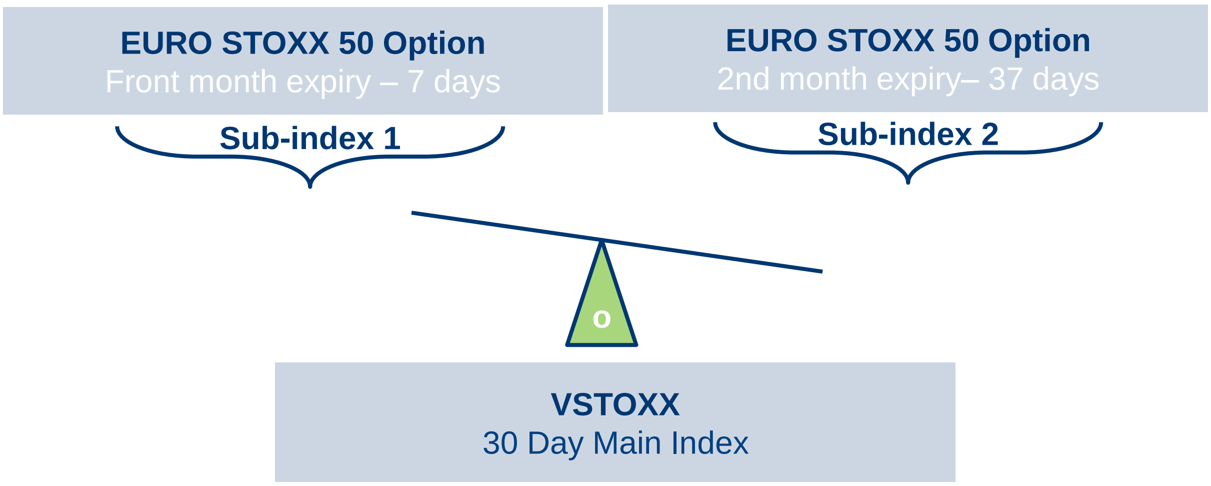
Several years before the financial crisis descended on us, I put forward the concept of "black swans": large events that are both unexpected and highly consequential. We never see black swans coming, but when they do arrive, they profoundly shape our world: Think of World War I, 9/11, the Internet, the rise of Google .

Relationship between equities & equity volatility

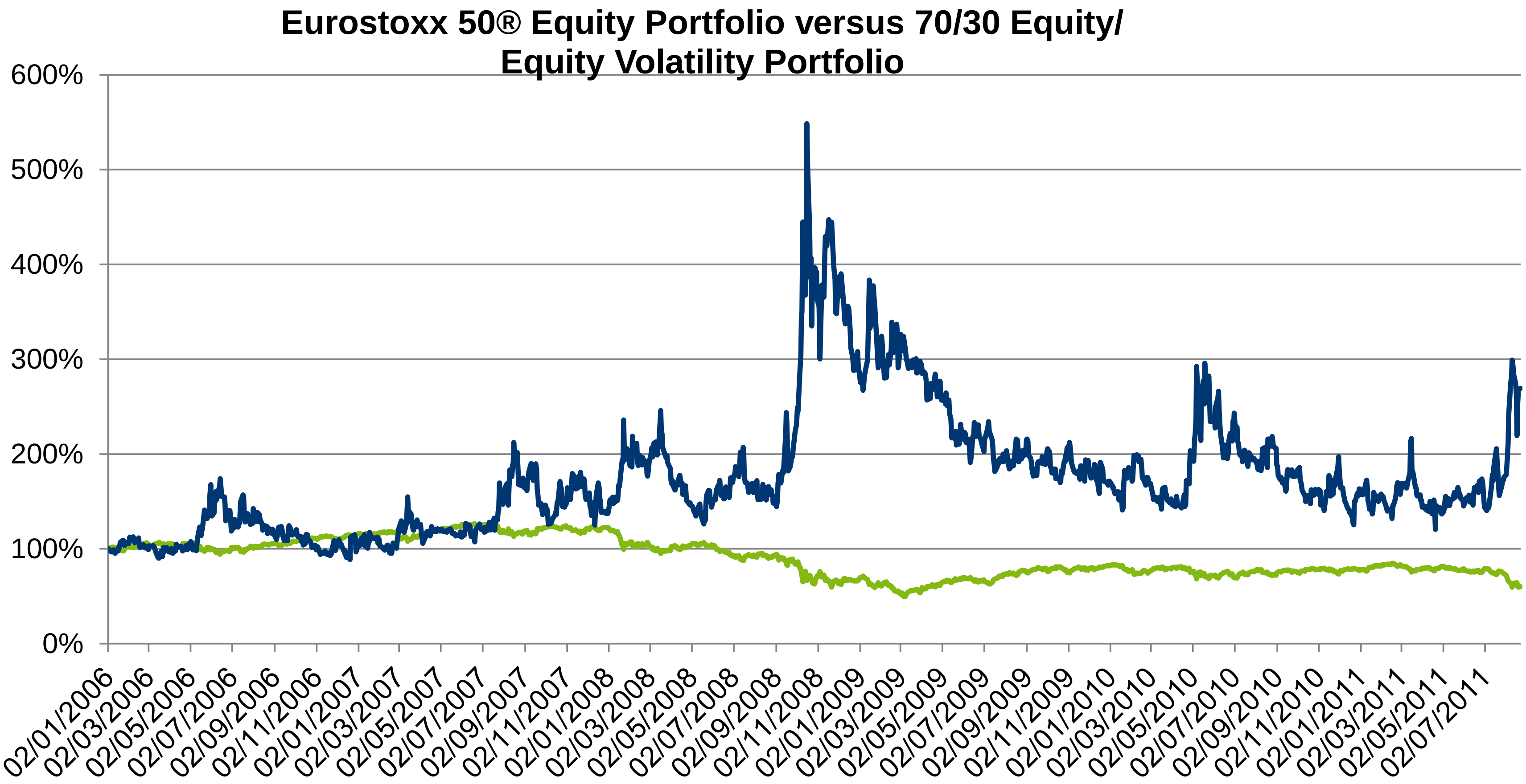


EURO STOXX 50® Volatility – the VSTOXX® index

- VSTOXX® Index is based on **market prices** of EURO STOXX® 50 Index Options.
- The VSTOXX® index does **NOT** measure implied volatilities of ATM options, but the implied variance across all options of given time to expiry.
- The main index VSTOXX® is designed as a **rolling index** at a fixed 30 days to expiry through linear interpolation of the two nearest of the eight available sub-indexes.
- The sub-indexes represent the eight expiry months with a maximum of two years and are calculated every five seconds.



Benefits of adding equity volatility to an equity portfolio – empirical results of a 70/30 equity / equity volatility portfolio

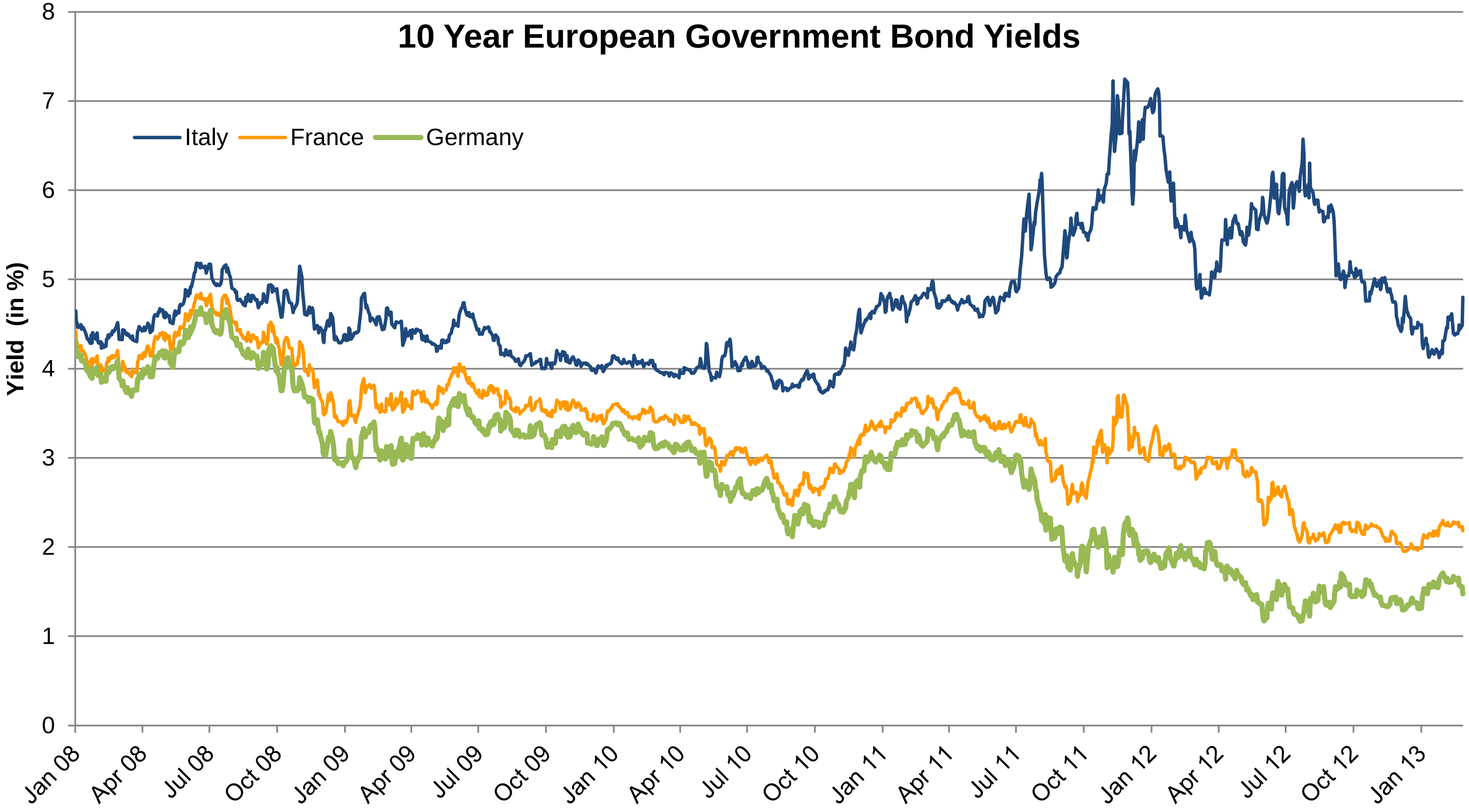


Other uses of Eurex futures to improve the efficiency of fund management

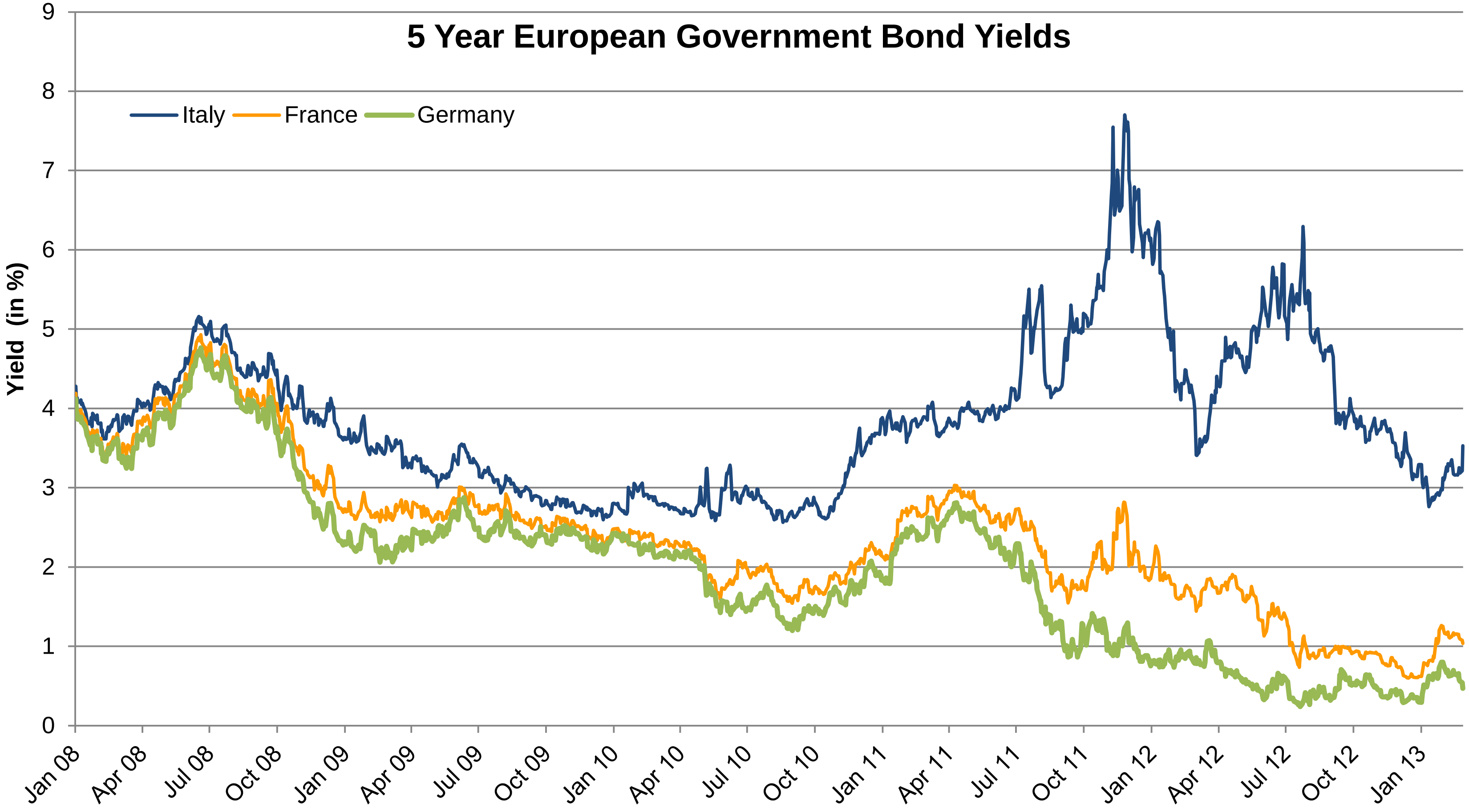
- Cash equitisation
- Managing portfolio tracking error & rebalancing costs
- Hedging dividend risk
- Stripping out dividends to create a pure equity investment

Generating Alpha

Alpha opportunities in European fixed income markets



Alpha opportunities in European fixed income markets



Buy Italian BTP Bonds / sell French OAT Bonds…

THE WALL STREET JOURNAL.
WSJ.com

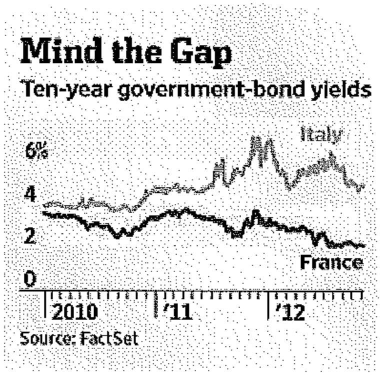
HEARD ON THE STREET | Updated November 6, 2012, 6:51 p.m. ET

Changing Course on a Euro-Zone Crisis Trade

By RICHARD BARLEY

For most of the last two years, the big euro-zone sovereign crisis trade has been to buy the debt of stronger northern European countries and sell that of their struggling southern peers.

But has that trade now run its course? Some investors are now backing the opposite bet: favoring Italy over France.



Italian 10-year bonds currently yield 4.9%—2.7 percentage points more than France. That partly reflects Italy's far-higher level of public debt: 126.1% of GDP in the second quarter of 2012, compared to 91% in France. Italy also faces political uncertainty tied to its elections in 2013.

But judged on other metrics, Italy fares well in comparison to France: it has a lower budget deficit, a stronger current-account position, and unemployment hasn't ballooned as in other southern European states. Italian bond issuance will fall sharply in 2013, while it remains high in France. Crucially, Italy has a long track record of managing high debt.

Italy's challenge is growth. But Prime Minister Mario Monti has made progress on a range of structural overhauls, including labor-market reforms, that should boost long-term growth. Italy's recession has been driven by a sharp tightening in lending standards that is now easing, Deutsche Bank notes.

The BTP / OAT Government Bond Yield Spread

The most efficient and cost effective way of expressing a long Italian government bond / short French government bond view is to Buy BTP Futures / Sell OAT Futures.

Structuring of BTP Future / OAT Futures Government Bond Yield Spread:

1. Determine cheapest to deliver bond and its interest rate sensitivity i.e. BPV:

Long Term BTP Future (June 2013): BTPS 5.5% November 2022 with a current BPV of 0.0775.

OAT Future (June 2013): FRTR 3% April 2022 with a current BPV of 0.0868.

2. Determine the BPV of the BTP Future and OAT Future i.e. BPV of Future = BPV CTD / CF CTD:

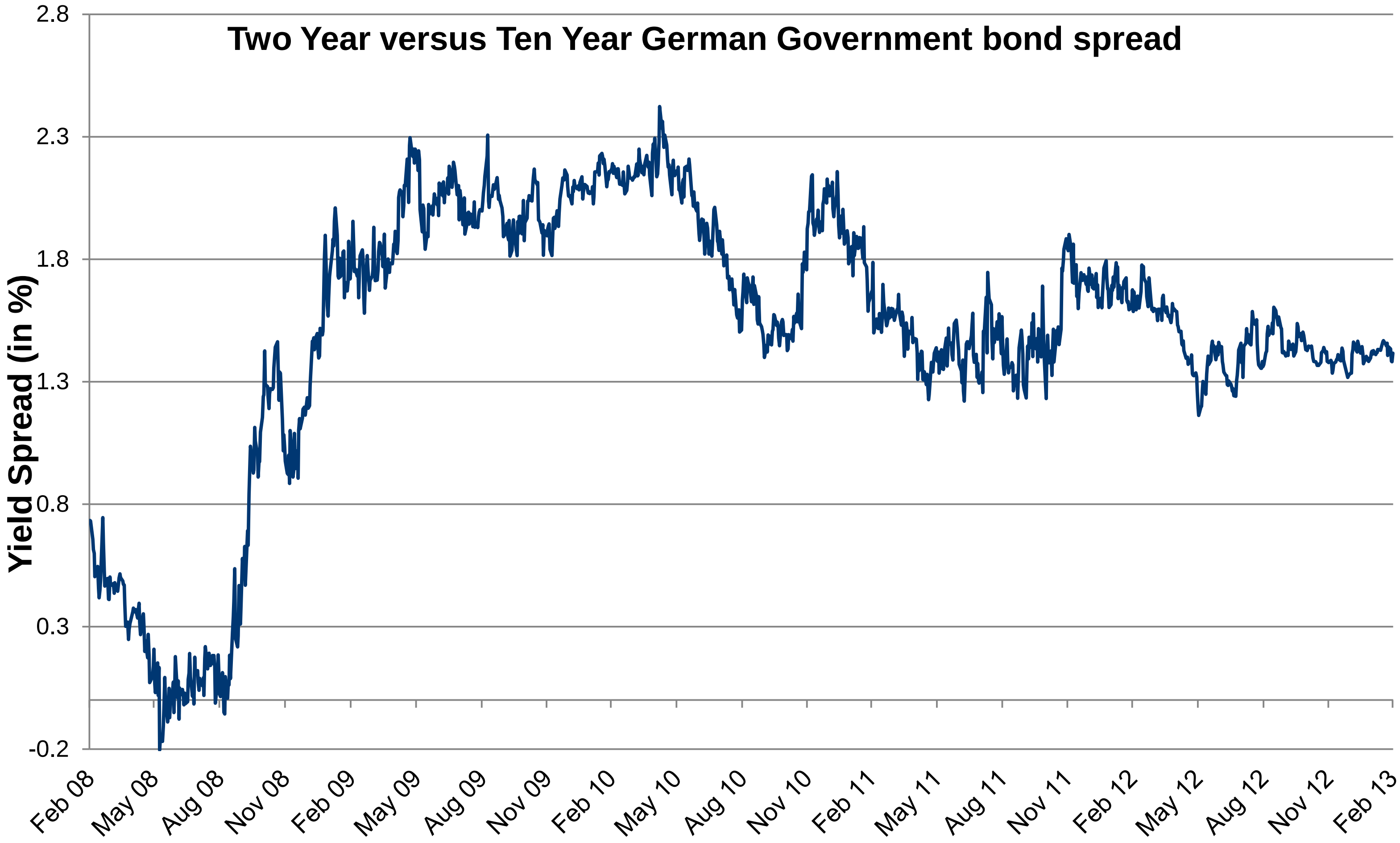
Long Term BTP Future (June 2013) BPV = 0.0775 / 0.970461 = 0.0798 or 7.89 futures price increments, **€79.80** in monetary terms.

OAT Future (June 2013) BPV = 0.0868 / 0.798035 = 0.1088 or 10.88 futures price increments, **€108.80** in monetary terms.

Therefore the BPV weighted ratio is 1.36 Bund Futures : 1.0 OAT Future.

The Fund Manager would establish a Long BTP Future / Short OAT Future Spread in a BPV weighted Long 1.36 BTP Future : 1.0 OAT Future ratio structure.

Schatz / Bund German Government Bond Yield Curve Spread



German Government Bond Schatz Future / Bund Future Yield Curve Strategy

Eurex's suite of Benchmark Fixed Income Futures also allow the Fund Manager to generate Alpha by being able to structure a position to benefit from changes in the shape of the German Government Bond Yield Curve with Schatz and Bund Futures contracts.

Structuring a Schatz / Bund Yield Curve Position:

1.Determine cheapest to deliver and interest rate sensitivity i.e. BPV

Schatz Future (June 2013): BKO 0.25% March 2015 with a current BPV of 0.0202

Bund Future (June 2013): DBR 2.0% January 2022 with a current BPV of 0.0865

2. Determine BPV of Schatz Future and Bund Future i.e. BPV Future = BPV CTD / CF CTD

Schatz Future (June 2013) BPV = 0.0202 / 0.906764 = 0.0222 = **€22.20**

Bund Future (June 2013) BPV = 0.0865 / 0.737805 = 0.1172 = **€117.20**

Therefore, the BPV weighted ratio is 5.27 Schatz Futures : 1.0 Bund Futures.

The Fund Manager, to benefit from changes in the German Government Bond Yield Curve, by taking a position in the Schatz Future / Bund Future spread, would structure the strategy in a BPV weighted 5.27 Schatz Futures / 1 Bund Future.

Other Alpha generating opportunities using Eurex benchmark futures

- Isolating the outperformance of a Corporate Bond Issue relative to Government Bonds
- Implied Dividend Yield Term Structure of European Stocks
- European Equity Volatility versus US Equity Volatility
- European Equity Market versus International Equity Markets

Appendix

Eurex benchmark European fixed income futures

	Euro-Schatz (FGBS)	Euro-Bobl (FGBM)	Euro-Bund (FGBL)	Euro-Buxl (FGBX)	Swiss (CONF)
Contract standard	Notional government bond issued by the FRG with **1.75-2.25 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the FRG with **4.5-5.5 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the FRG with **8.5-10.5 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the FRG with **24-35 years to maturity** and a (notional) 4% coupon	Notional government bond issued by the Swiss Confederation with **8.0-13 years to maturity** and a (notional) 6% coupon
Delivery	Sellers obligation to deliver and the right to choose which security to deliver				
Price quotation	In percent of par with three decimal places	In percent of par with two decimal places			
Minimum price change	0.005 per cent equivalent to EUR 5	0.01 per cent equivalent to EUR 10		0.02 per cent equivalent to EUR 20	0.01 per cent equivalent to CHF 10
Delivery day	Tenth calendar day of the delivery month				
Contract months	March, June, September and December				
Last Trading Day	Two Exchange trading days prior to Delivery Day				
Trading hours	08:00 – 22:00 CET				08:00 – 17:00 CET

Eurex fixed income futures – BTP & OAT Futures

	Short-term Euro-BTP (FBTS)	Mid-term Euro-BTP (FBTM)	Long-term Euro-BTP (FBTP)	Euro-OAT (FOAT)
Contract standard	Notional government bond issued by the **Republic of Italy** with **2-3.25 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the **Republic of Italy** with **4.5-6 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the **Republic of Italy** with **8.5-11 years to maturity** and a (notional) 6% coupon	Notional government bond issued by the **French Republic** with **8.5-10.5 years to maturity** and a (notional) 6% coupon
Delivery	Sellers obligation to deliver and the right to choose which security to deliver			
	In percent of par with two decimal places			
Minimum price change	0.01 per cent equivalent to EUR 10			
Delivery day	Tenth calendar day of the delivery month			
Contract months	March, June, September and December			
Last Trading Day	Two Exchange trading days prior to Delivery Day			
Trading hours	08:00 – 19:00 CET			

Benefits of adding equity volatility to an equity portfolio – empirical research

- EDHEC, ‘Designing equity solutions with managed volatility’, Funds Europe, October 2012. Link: http://www.eurexchange.com/blob/exchange-en/3150-280014/280016/2/data/funds_europe.pdf.pdf

- EDHEC, ‘The Benefits of Volatility Derivatives in Equity Portfolio Management’, May 2012. Link: http://www.eurexchange.com/blob/exchange-en/4038-4046/184758/2/data/edhec_benefits_volatility_derivatives_2012.pdf.pdf

- E. Szado, ‘VIX Futures and Options – A Case Study of Portfolio Diversification During the 2008 Financial Crisis’, Journal of Alternative Investments, Fall 2009. Link: http://www.iijournals.com/doi/abs/10.3905/JAI.2009.12.2.068

Eurex product information, articles, research papers

Eurex Fixed Income Futures Product Links:

http://www.eurexchange.com/exchange-en/products/int/

http://www.eurexchange.com/exchange-en/products/int/fix/

http://www.eurexchange.com/exchange-en/resources/publications/

Eurex OTC Trade Entry Services:

http://www.eurexchange.com/exchange-en/trading/eurex-otc-trade-entry/

Eurex VSTOXX® Futures Product Information:

http://www.eurexchange.com/exchange-en/products/vol/