Eurex

Adapting to a changing environment

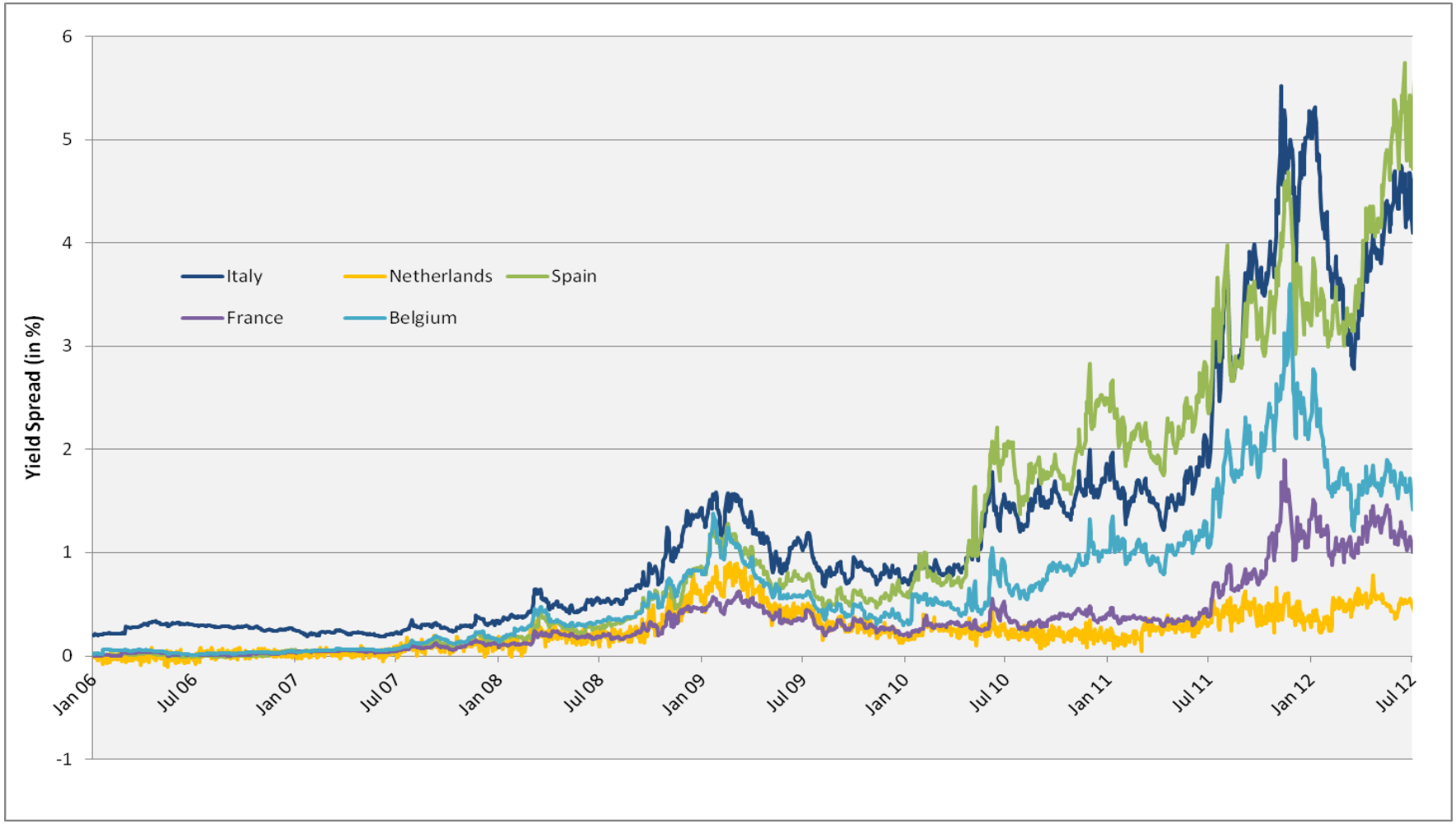
Axel Vischer
July 2012

Agenda

- Adaptation to the sovereign crisis - product design, volumes and liquidity
- Adaptation to technological change - Eurex technology roadmap

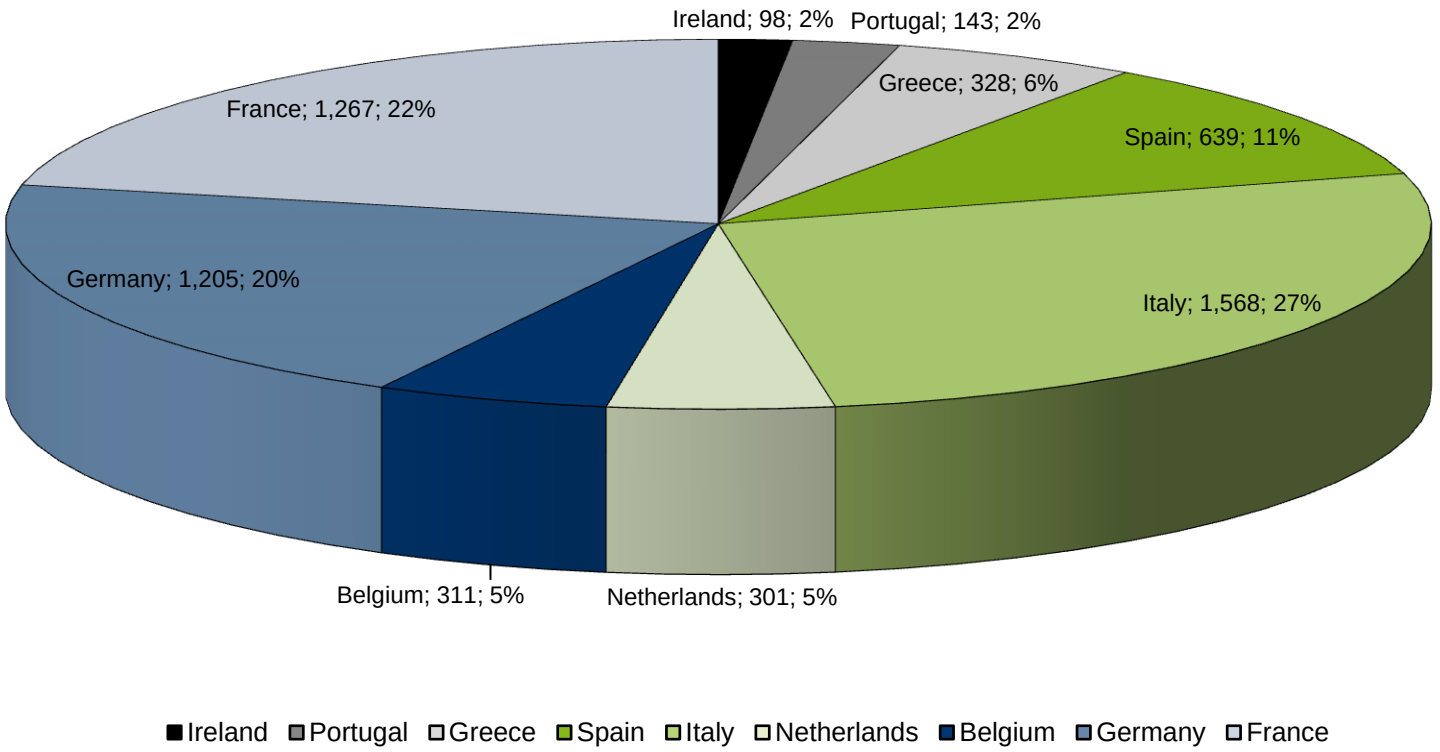
Development of bond spreads

Bonds yield spreads since 2006



Total issuance size

Outstanding country debt in bn EUR



Euro-BTP futures – Italian Government Bond Futures

Brief background

- Since the inception of the Euro, and until 2007, spreads on German government bonds and those of other countries in the Eurozone were very stable

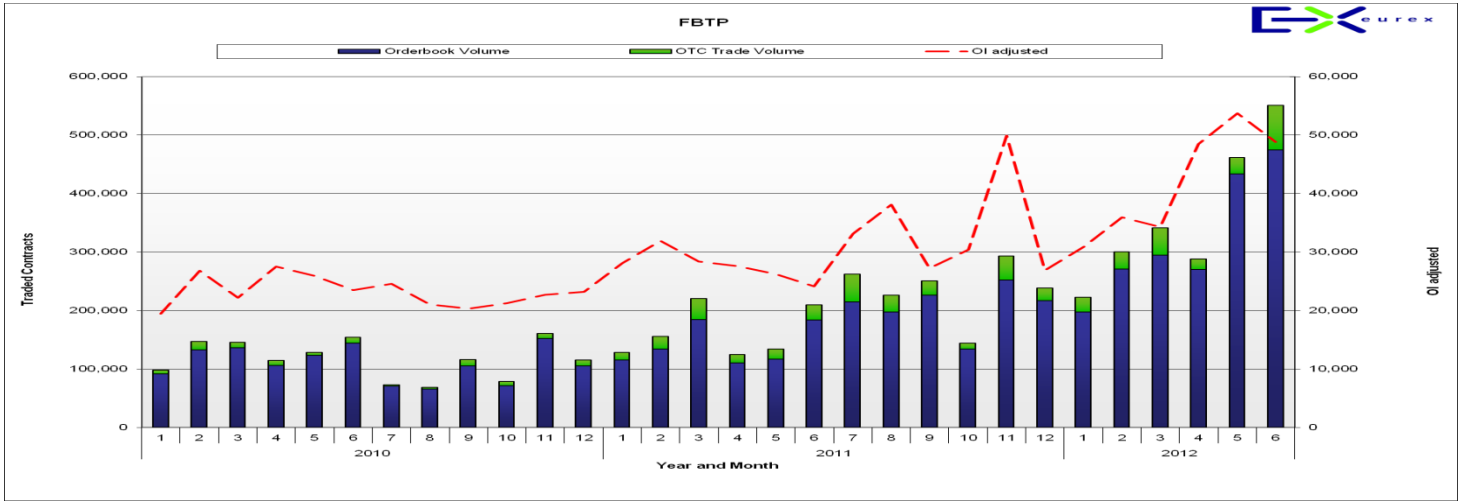
The sub-prime crisis

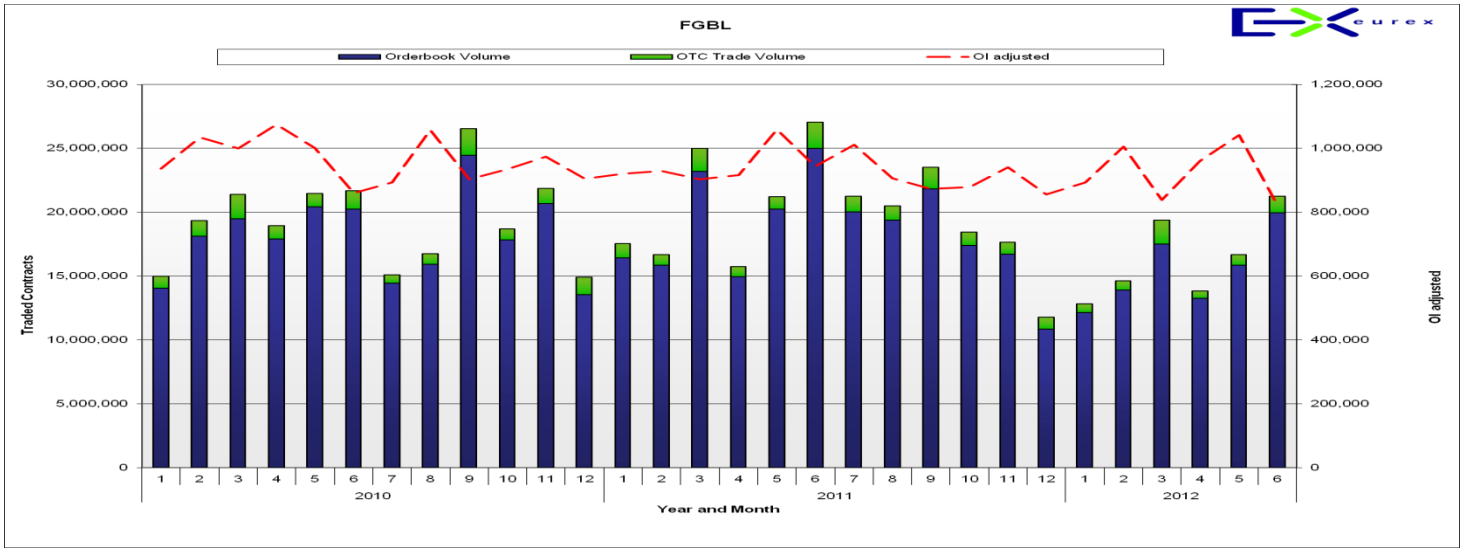
- Since the start of the sub-prime crisis in July 2007, several government bond spreads over Germany have significantly widened. These spread differentials have continued to widen dramatically in Q1 2010.
- The market requires a new hedging instrument which will better track non-triple A-rated European government bonds and potentially other interest rate bearing instruments (i.e. swaps)

BTP Futures on Eurex

- Eurex therefore decided to launch futures based on notional long-term debt instruments issued by the Republic of Italy (Buoni del Tesoro Poliennali – BTP)
- The BTP Futures were launched on 14 September 2009

Volume and Open Interest Development





Benefits of Eurex's BTP futures at a glance

Hedging	Offers the market an instrument to hedge non-AAA Eurozone debt on-exchange, and mitigates the basis risk currently present when hedging with Bund Futures.
Spread Opportunities	Offers the market an alternative to cash bonds to trade the yield spread between German and Italian debt.
Basis Trading	Presents an opportunity to trade the basis on Italian debt instruments and will therefore complement the Italian cash market.
Exposure to Non-German debt	BTP futures serve as a proxy for hedging exposure to all non-AAA rated European government debt.
Eurex Clearing	The involvement of Europe's leading clearing house mitigates counterparty risk, provides effective risk and collateral management and improves operational efficiency.

The Eurex fixed income complex

Contract	Code	Term	Years to Maturity	Coupon	Tick size	Tick Value	Minimum Issue
Euro-Schatz Futures	FGBS	2 Years	1.75 - 2.25	6%	.005	EUR 5	5 billion
Euro-Bobl Futures	FGBM	5 Years	4.5 – 5.5	6%	.01	EUR 10	5 billion
Euro-Bund Futures	FGBL	10 Years	8.5 – 10.5	6%	.01	EUR 10	5 billion
Euro-Buxl Futures	FGBX	30 Years	24.0 – 35.0	4%	.02	EUR 20	5 billion
Long-Term Euro-BTP Futures	FBTP	10 Years	8.5 - 11.0	6%	.01	EUR 10	5 billion
Mid-Term Euro-BTP Futures	FBTM	5 Years	4.5-6	6%	.01	EUR 10	5 billion
Short-Term Euro-BTP Futures	FBTS	2 Years	2-3.25	6%	.01	EUR 10	5 billion
Euro-OAT Futures	FOAT	10 Years	8.5-10.5	6%	.01	EUR 10	5 billion
CONF Futures	CONF	10 Years	8.0 - 13.0	6%	.01	CHF 10	500 million

Germany

Italy

France

Switzerland

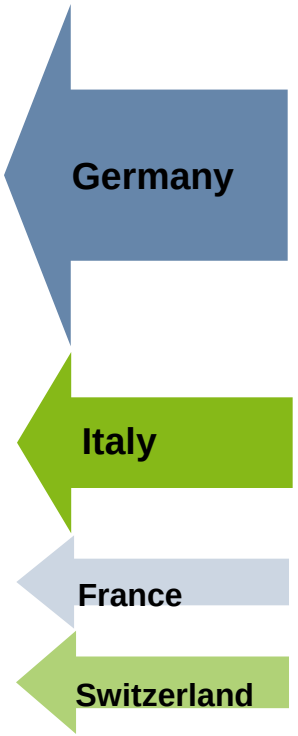
Eurex fixed income futures contract specifications

- Physically delivered bonds of corresponding country
- Contracts Available: three nearest quarterly months of the March, June, September and December cycle up to nine months
  - Implied calendar spreads are calculated on the Eurex trading system
  - Delivery Day: 10th calendar day of respective quarterly month
- Trading Information
  - Trading ends: 12:30 pm CET on last trading day
  - Last Trading Day: two exchange days prior to delivery day of the maturity month
  - Final Settlement Price: Derived from volume-weighted average price of all trades during the final minute of trading
- Options are available on all Euro-Bund, Euro-Bobl and Euro-Schatz Futures contracts

Eurex fixed income complex volume and open interest

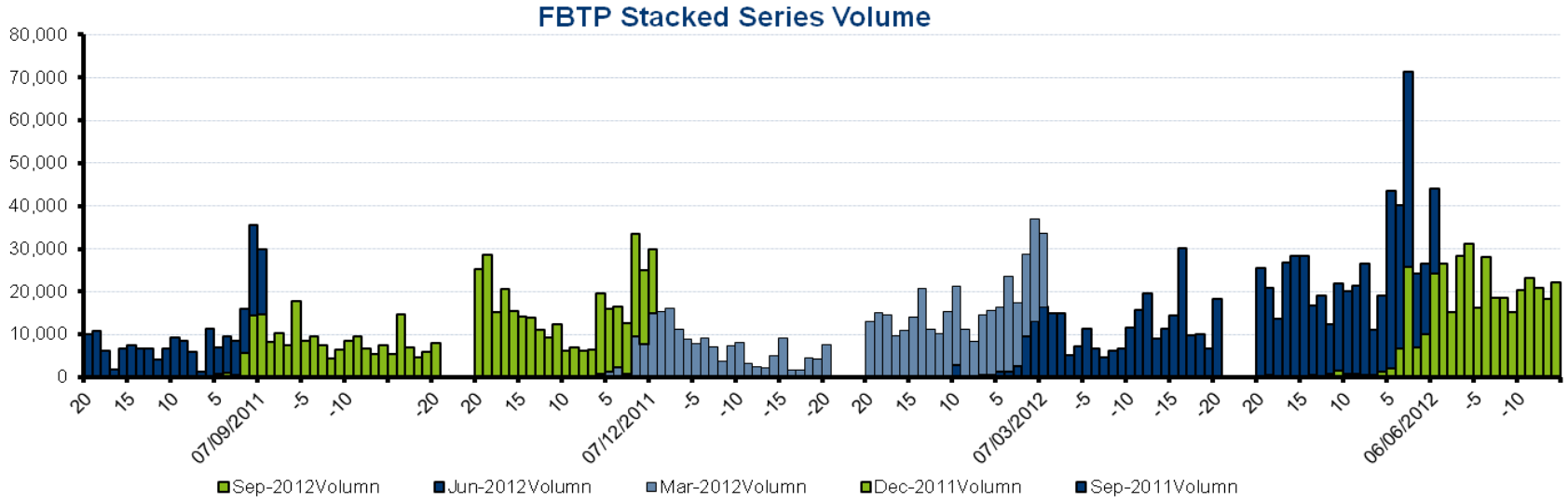
- 2012 volumes and open interest demonstrate Eurex success in meeting fixed income market needs

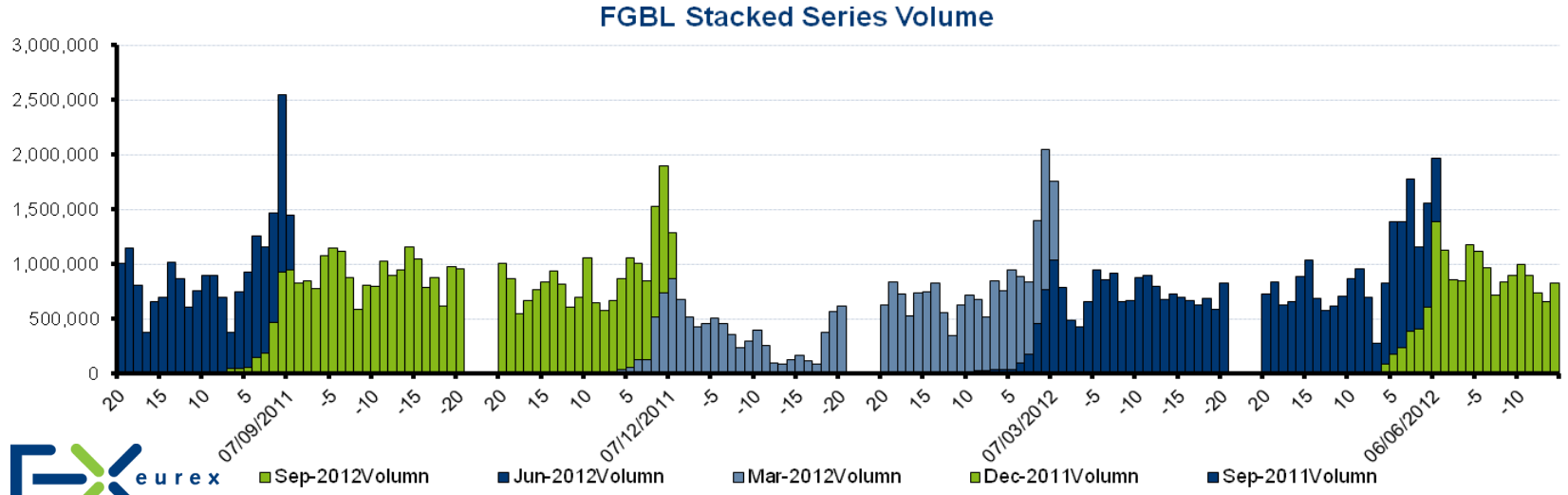
Contract	Term	YTD Average Daily Volume	Open Interest
Euro-Schatz Futures	2 Years	412,246	925,057
Euro-Bobl Futures	5 Years	444,133	568,517
Euro-Bund Futures	10 Years	768,404	816,012
Euro-Buxl Futures	30 Years	9,215	59,541
Long-Term Euro-BTP Futures	10 Years	17,085	51,861
Short-Term Euro-BTP Futures	2 Years	2,825	19,808
Euro-OAT	10 Year	16,949	64,867
CONF Futures	10 Years	631	5,879



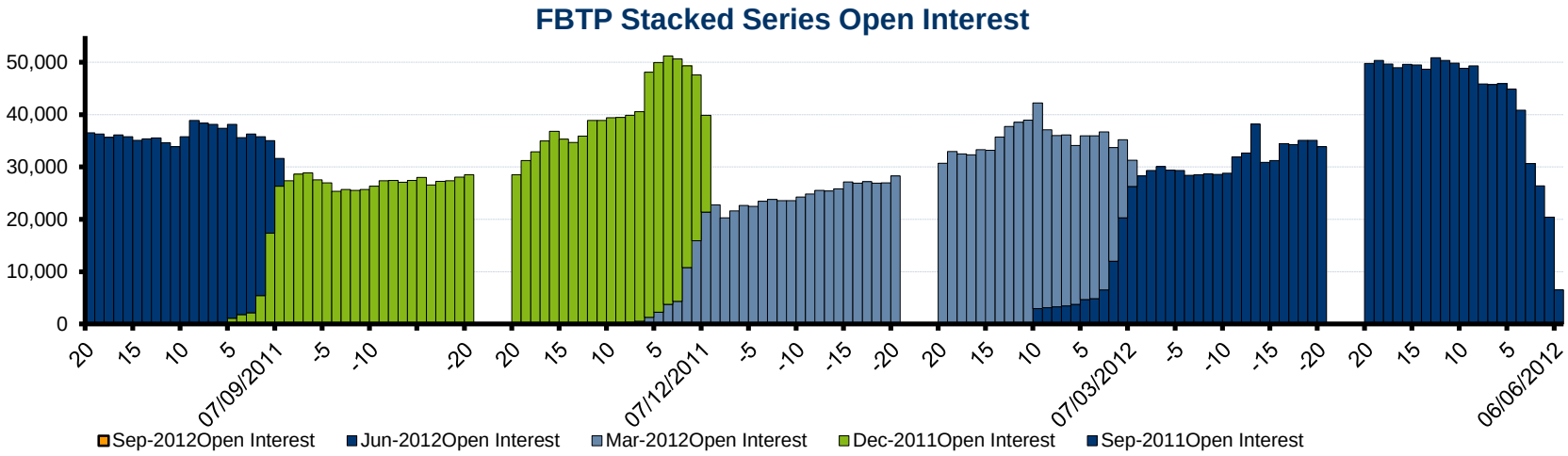
*From launch 4/16/12 till 5/7/12

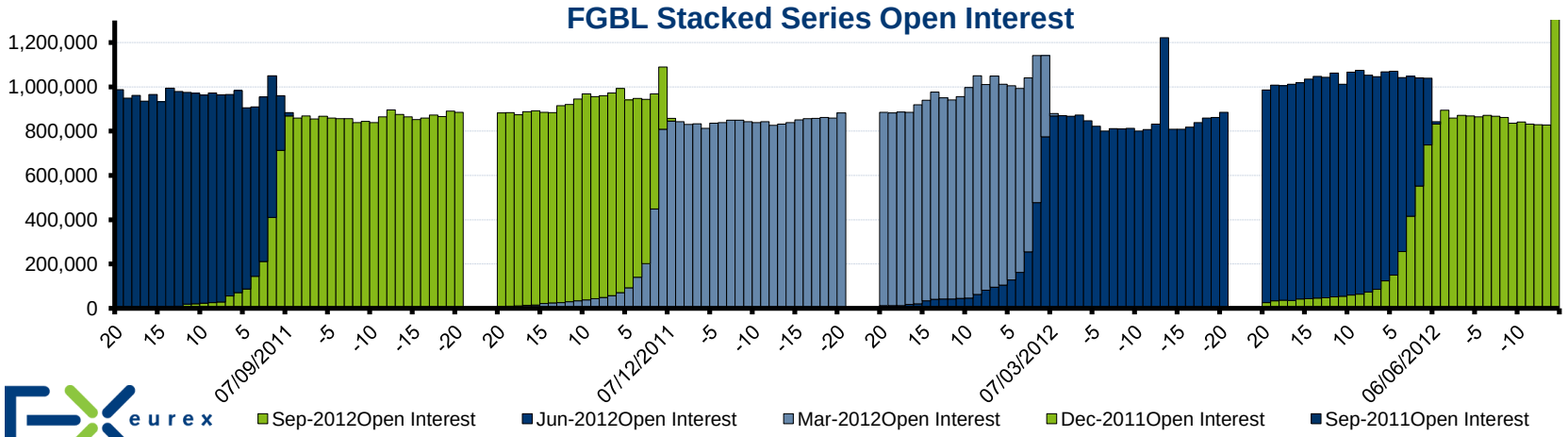
Italian BTP Futures (FBTP) & (FGBL)



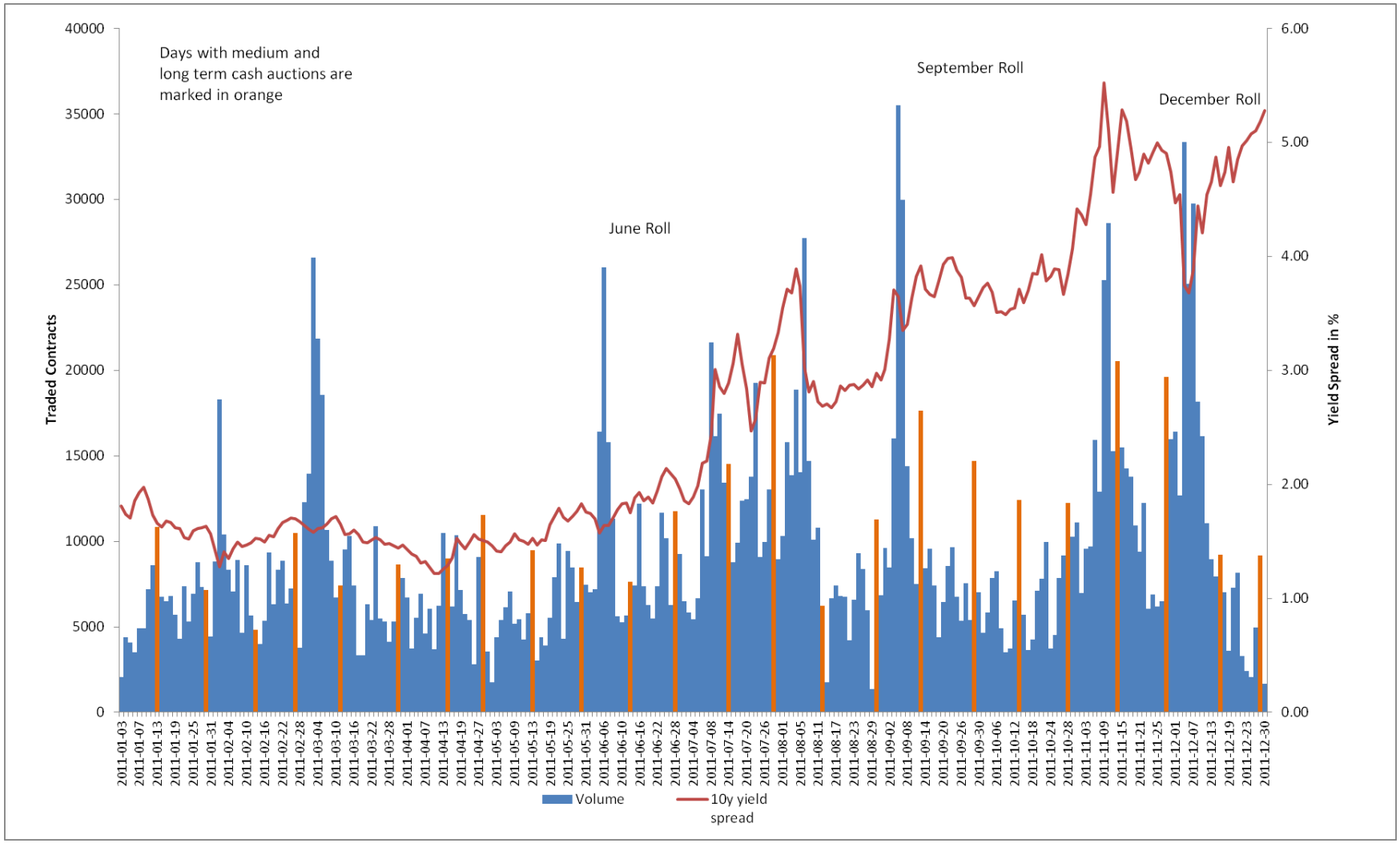


Italian BTP Futures (FBTP) & (FGBL)



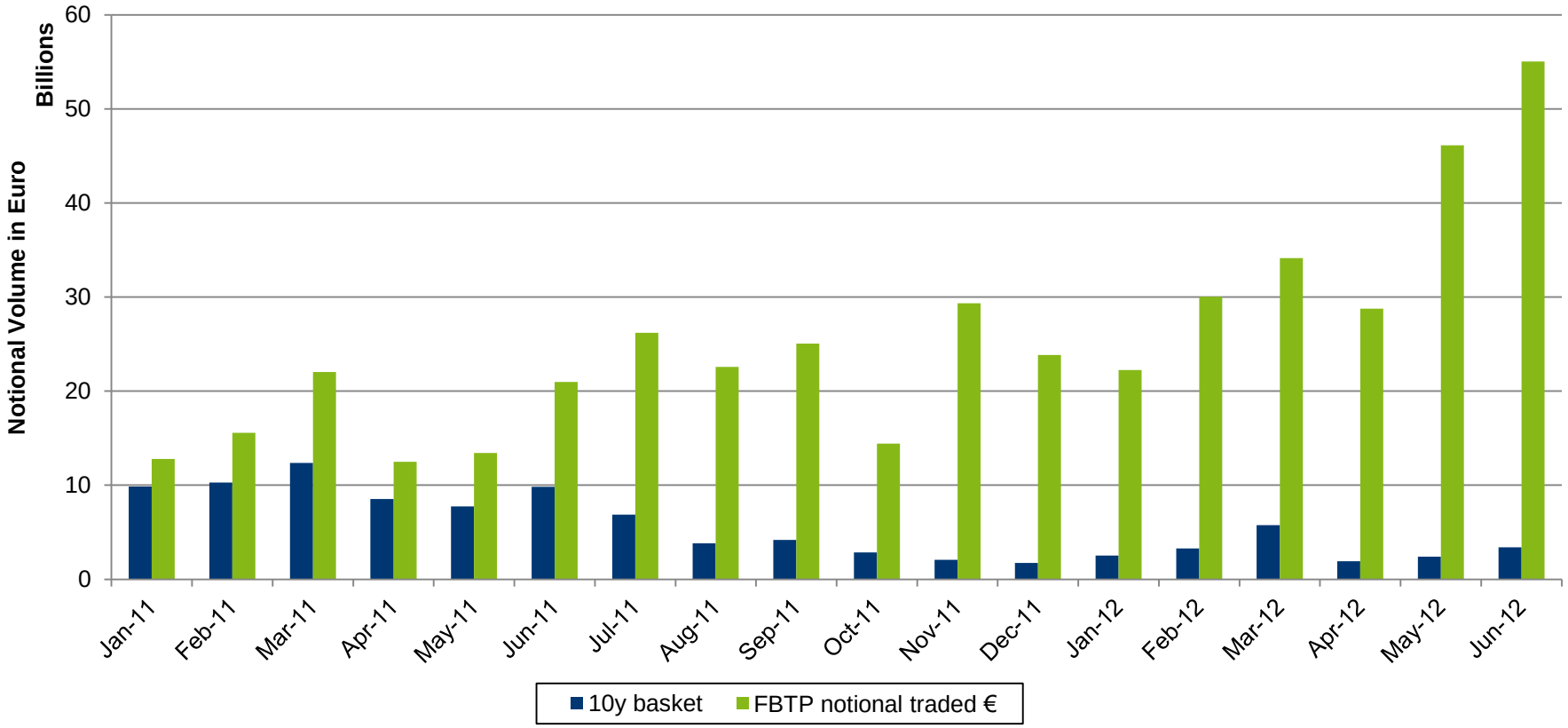


Long-Term Euro-BTP Futures - Volume drivers



Long-Term Euro-BTP Futures vs cash market volume*

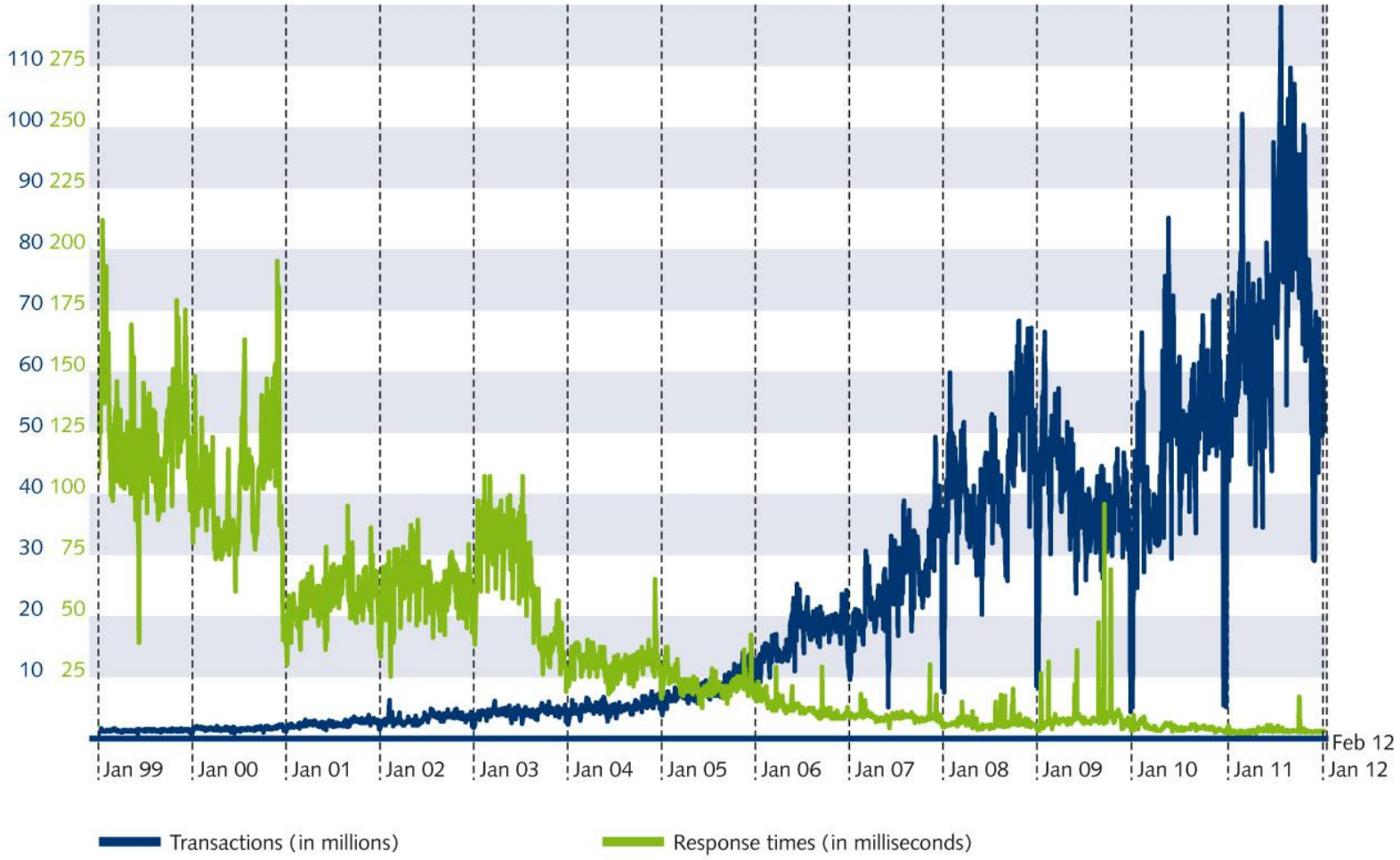
FBTP 10y vs. 10y notional in €



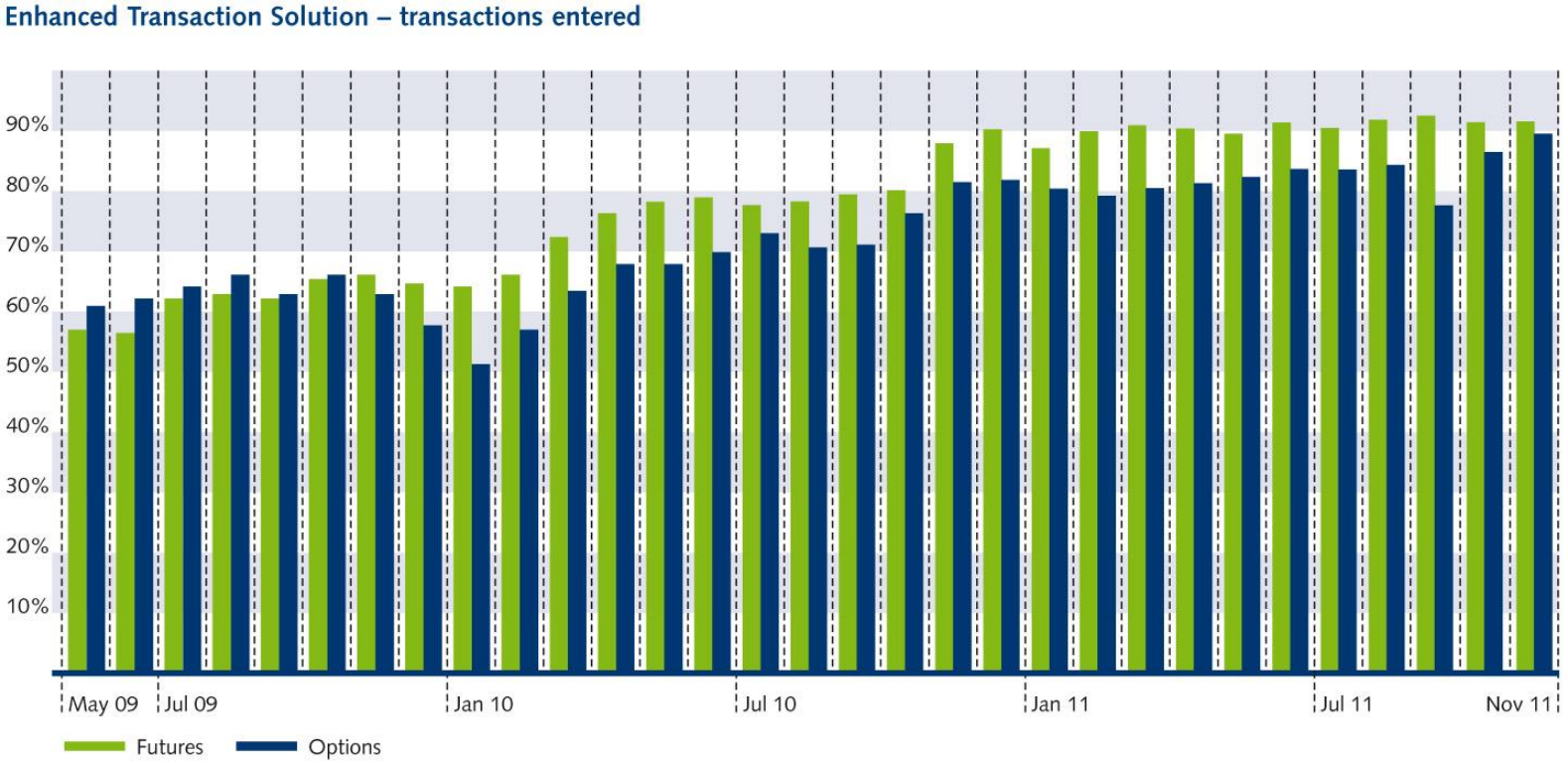
	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	June-12
10y Futures as % of 10y Cash*	129.58%	151.38%	178.18%	146.16%	173.15%	213.21%	380.75%	589.71%	599.73%	506.04%	1422.79%	1378.98%	885.52%	919.87%	812.64%	1503.61%	1916.78%	1623.39%

** Measured in terms of deliverable bonds traded on MTS Italy.*

Transaction volume and response times at Eurex

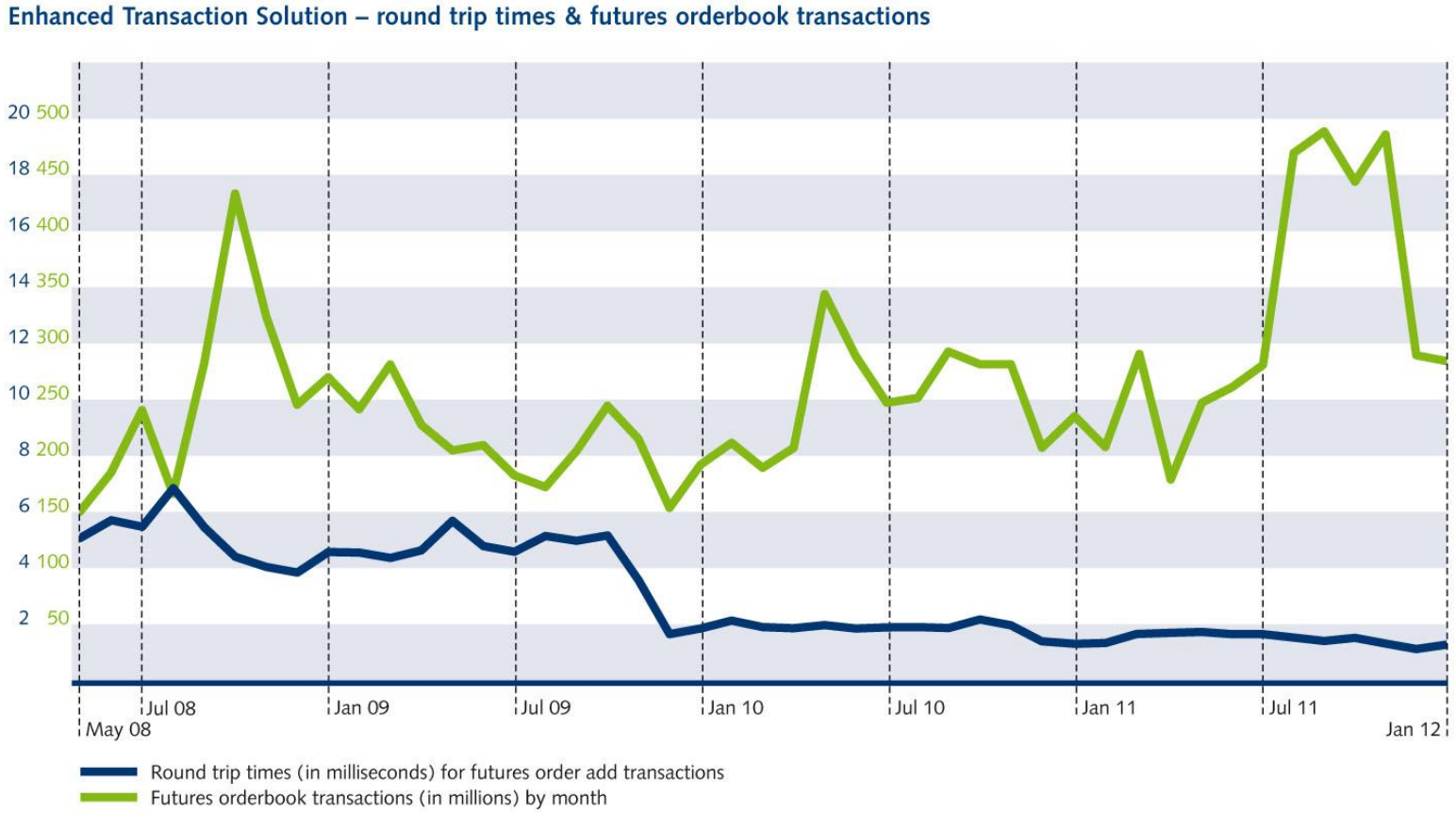


Usage of the Enhanced Transaction Solution



Today more than 80 percent of options and 90 per cent of futures order and quote transactions are entered using the Enhanced Transaction Solution.

Futures order add round-trip times



Futures order add latency has been significantly reduced to a level of a daily average of about 0,8 -1,2 ms for users of the Enhanced Transaction Solution located in the Equinix data centre in Frankfurt.

Enhanced Transaction Solution – detailed futures data

Our transparency

- For the top 10 futures products daily statistics about the matching engine processing times as well as for the Enhanced Transaction Solution gateway processing times are provided via Eurex's website member section.

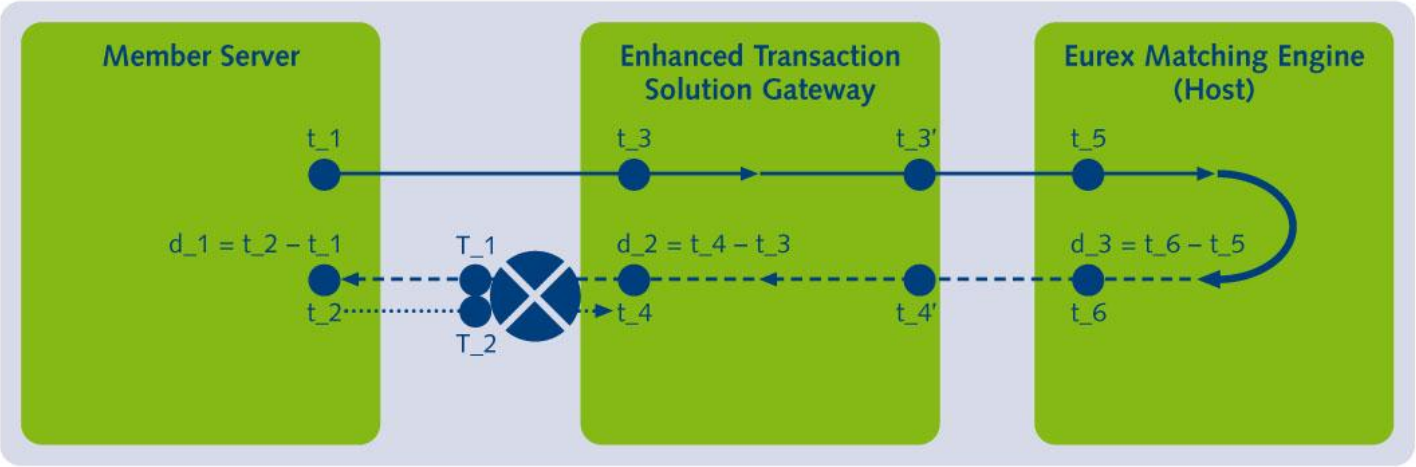
Sample: August 8, 2011; 08:00–22:00 (CET)

Product	Product ID	Matching Engine Round-trip times (t_6 – t_5)			Enhanced Transaction Solution Round-trip times (t_4 – t_3)		
		Average	Median	99th percent	Average	Median	99th percent
EURO STOXX 50® Index Futures	FESX	0.759	0.360	5.156	1.305	0.766	7.078
DAX® Futures	FDAX®	0.622	0.341	4.317	1.149	0.766	5.990
SMI® Futures	FSMI	0.608	0.328	4.473	1.031	0.734	5.202
STOXX Europe 50® Index Futures	FSTX	0.490	0.375	2.932	0.945	0.817	3.450
MDAX® Futures	F2MX	0.565	0.410	3.809	0.960	0.808	4.317
Euro-Buxl® Futures	FGBX	0.578	0.410	3.577	1.027	0.861	4.166
Euro-Bund Futures	FGBL	0.987	0.476	6.657	1.606	0.936	8.729
Euro-Bobl Futures	FGBM	0.776	0.426	5.682	1.383	0.908	7.658
Euro-Schatz Futures	FGBS	0.436	0.276	2.008	0.988	0.775	3.642
Long-Term Euro-BTP Futures	FBTP	0.460	0.405	1.453	0.906	0.852	1.990

- Please note that the statistical data set is the set of all non-error, non-persistent order and quote related transactions for the respective Eurex Exchange product sent via a Enhanced Transaction Solution session on gateways in the Equinix data center.

Enhanced Transaction Solution – high level time stamps

Our offering



- Daily averages (per Enhanced Transaction Solution session) are available for d_2 & d_3 (Service Point at www.eurexchange.com -> technical services-> monitoring-> Eurex -> Roundtrip monitor Eurex ETS).
- Daily averages (per Enhanced Transaction Solution session) of the TCP/IP round trip times T_2-T_1 are available as well (Service Point at www.eurexchange.com -> technical services-> monitoring-> Eurex -> TCP/IP Roundtrip Statistics Eurex ETS).
- Please note that the timestamps t_3' and t_4' are not available for members.

Enhanced Transaction Solution – high level time stamps

Definition

- t_1,t_2: can be taken by the application when the request/response is read from/written to the socket.
- t_3,t_4: taken by the Enhanced Transaction Solution gateway when request/ response is read from/written to the socket on the participant´s side of the gateway; contained in (private) Enhanced Transaction Solution response.
- t_3',t_4': taken by the Enhanced Transaction Solution gateway when request/ response is read from/written to the socket to/from the matching engine. This data is not available to members
- t_5, t_6: taken by the matching engine when request/response is read from/written to the socket; contained in (private) Enhanced Transaction Solution response (note that consecutive t_5 timestamps will differ by at least 18usec).
- T_1: time when a TCP packet sent by the Eurex gateway to the participant server passes a switch just next to the Eurex gateway.
- T_2: time when the TCP acknowledge form a participant server of a TCP packet sent by the Eurex gateway to the member server passes a switch just next to the Eurex gateway.
- A definition which Enhanced Transaction Solution/Enhanced Broadcast Solution fields correspond to the above timestamps can be found in the appendix.

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