

# Centrally Cleared Derivatives – Mitigating Counterparty Risk for Institutional Investors

“You’ve got virtually no counterparty credit risk in the futures markets... standardized contracts... and another factor is there is a smaller pool of dealers now for OTC trades.... There is likely to be a flight to safety”, Susan Ervin former chief counsel, CFTC, Division of Trading and Markets, Derivatives Week, “Some Talk Up Flight To Exchange-Traded from OTC”, October 20, 2008.

“In the longer term, there’s no doubt in my mind that in 2009 or 2010, you’re going to see a migration to exchange-traded from OTC, or at the very least, centrally cleared OTC products”, Simon Yates, Head of Global Equity Derivatives and Co-Head of Global Securities EMEA, Credit Suisse, “Rocked by Counterparty Risk”, RISK, November 2008.

## Introduction

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Historically, derivatives have always been regarded as falling into one of two subsets, exchange-traded derivatives (ETD), standardized contracts designed by and traded on a listed exchange and over-the-counter derivatives (OTC) either highly standardized “exchange look-a-like” contracts (estimated to be 70 percent of OTC equity derivatives transactions) or customized derivative contracts traded between two individual counterparties. The recent turmoil in financial markets, bank default and bailouts has focussed attention on counterparty risk and brought into prominence and importance a new subset in derivatives, centrally cleared derivatives (CCD), derivative transactions traded bilaterally and brought on exchange to benefit from the Clearing House that is central counterparty (CCP) and thereby mitigating counterparty risk.

## Benefits of Centrally Cleared Derivatives

The novation of bilaterally agreed derivatives transactions into Eurex Clearing has significant benefits for the institutional investor:

- **Mitigation of Counterparty Risk** – Eurex Clearing becomes the counterparty to all trades, enforces a strict risk control and an adequate collateralization of open positions (see role of Clearing House below);
- **Margin Offset** – The transfer of OTC derivative transactions into Eurex’s clearing system has the benefit of margin offset with existing open Eurex exchange-listed derivative positions.
- **Attain Competitive Pricing** – Institutional investors are able to conclude their bilaterally agreed OTC transactions on a purely price-based decision knowing that counterparty risk is not a consideration<sup>1</sup>.
- **Reduction of Capital Requirement** – Increased capital efficiency through a zero percent weighting of exposure based on Pillar II of Basel II which recognizes the distinction between bilateral OTC transactions and OTC transactions cleared through a CCP<sup>2</sup>
- **Independent Daily Mark-To-Market Valuation** – Eurex Clearing produces a daily valuation of all open positions leading to superior risk management and greater transparency.

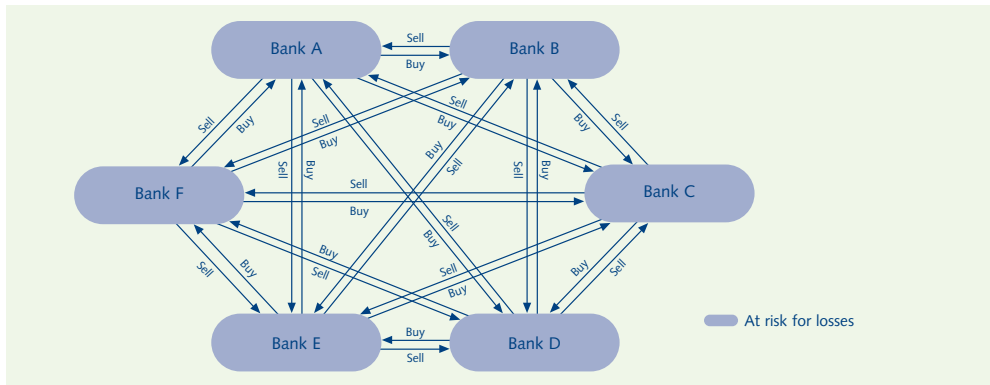
<sup>1</sup> See Appendix 1 – Competitive Pricing through Exchange-Cleared Derivatives.

<sup>2</sup> See R. Bliss and C. Papatthanassiou (2006).

- **Multilateral Netting** – Makes OTC contracts fungible between different counterparties so they can be netted off against each other – increases the flexibility and ability to enter and exit an OTC position.
- **Processing Efficiency**<sup>3</sup> – Reduces manual errors through full automation and straight-through processing (STP) as well as an efficient use and management of collateral.

Diagrams one and two below outline the differences between counterparty risk in over-the-counter and exchange-traded/exchange-cleared derivatives and the role of the Clearing House. Bilateral OTC derivatives have an explicit counterparty risk between the two counterparties in the bilateral transaction. Moreover, in the event of a default in a bilateral OTC transaction there is a risk of contagion between related counterparties in other OTC transactions:

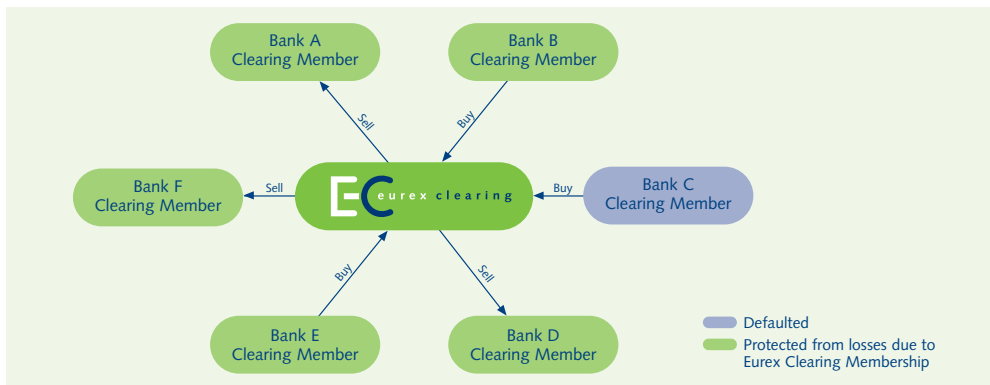
**Diagram 1: OTC Derivatives – Counterparty Risk and the Threat of Contagion**



OTC Derivatives: The default of firm A in an OTC derivative transaction has a possible contagion effect. It does not only affect firm F, it leaves all connected trading counterparties from firm A to F potentially at risk.

In an exchange-traded or exchange-cleared derivatives transaction the Clearing House stands in between every transaction becoming buyer to every seller and seller to every buyer. It enforces every clearing member to post initial margin on positions held at the exchange and, in return, each clearing member will require that each of its clearing clients post sufficient initial margin for all of its open positions<sup>4</sup>. There is also a daily mark-to-market Variation Margin adjustment on all open positions. Diagram two below outlines the role of the Clearing House:

**Diagram 2: Exchange-Cleared Derivatives – The Role of the Clearing House**



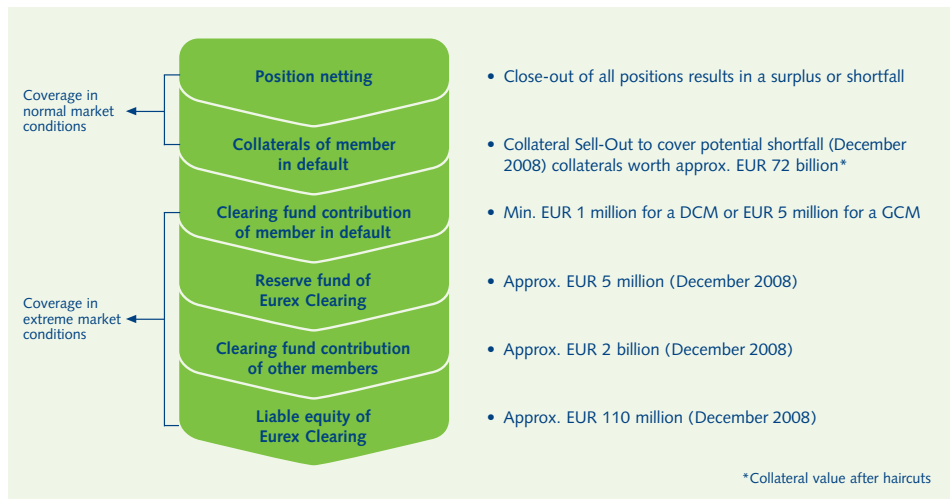
Centrally cleared derivatives: The Clearing House is the buyer to every seller and a seller to every buyer. In the example above, it stands in between firms A to F in the transaction. If firm A defaults, positions are closed out or transferred to other members. The effect of default is contained, there is no contagion.

<sup>3</sup> See Appendix 2 for analysis of costs of trading ETD versus OTC in "The Global Derivatives Market – An Introduction".

<sup>4</sup> Client A is long ten futures and Client B is short 5 futures, the clearing member will pay initial margin to the exchange of its net position that is long five whereas the clearing member will require Client A to pay initial margin on ten (long) contracts and Client B on five (short) contracts to them – netting. Netting at Eurex Clearing is on a clearing member level across open positions. There is no netting across agent and proprietary positions and no netting across different NCMs under the same clearing member.

Variation Margin is the daily mark-to-market margin payment (can be positive or negative) which relates to the daily change in the value of the open position. Initial margin is the “good faith deposit” or “buffer payment” or “cushion” to cover one day market risk. Initial margin requirements can change to reflect increased or decreased market volatility and can change intra-day. As well as requiring margin from every clearing member there are other “Lines of Defence” in place to protect each position should a clearing member default – see Diagram 3 below. Eurex Clearing members are required, based on the proportion of their open position to lodge collateral in the form of guarantees, cash and securities with the exchange. As of the end of September 2008 the Eurex Clearing Fund stood at EUR 1.1 billion. It is significant that whilst two clearing members have defaulted in Eurex’s history, (Gontard & Metallbank and Lehman Brothers International (Europe)) no other clearing member or clearing client has suffered from a loss of funds as a result of the defaults and open positions of the defaulting members were quickly transferred to other clearing members. In terms of the recent default of Lehman Brothers International (Europe) 99 percent of all customer positions were successfully transferred by the close of business on September 19, 2008 (Lehman defaulted on September 15, 2008) with the balance completed on September 22, 2008. There was no need at any time to draw on any of the lines of defence of Eurex Clearing i.e. the Clearing Fund.

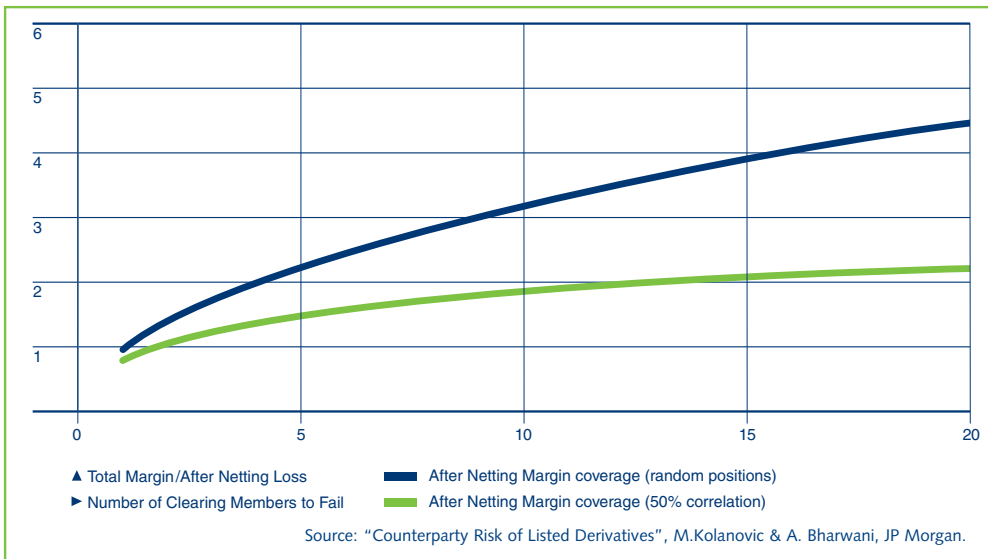
**Diagram 3: Lines of Defence – Eurex Clearing**



Kolanovic and Bharwani<sup>5</sup> in “Counterparty Risk of Listed Derivatives” looked at the effect of a simultaneous failure of a number of members of a Clearing House and believe that the netting effect between the failed members would significantly reduce the risk to the Clearing House, other members and their clients. Kolanovic and Bharwani looked at two scenarios, no correlation between the failed firms and the failure was due to exogenous circumstances so that there would be a maximum netting benefit between the failed clearing members. The other situation would be that the failed clearing members held positions that did correlate with each other and so therefore the benefit of netting was reduced. In this second scenario Kolanovic and Bharwani assumed a 50 percent correlation between clearing members’ open positions.

<sup>5</sup> Marko Kolanovic, Ph.D., is Global Head of Derivatives and Delta One Strategy at JPMorgan. His colleague Amyn Bharwani is Quantitative Analyst.

Diagram 4: After Netting Margin Coverage<sup>6</sup>



In terms of ten clearing members defaulting simultaneously with random positions between members the total margin would cover roughly three times the expected loss and where there was a fifty percent correlation between members' positions the netting of positions would result in margins covering roughly just under twice the expected loss (see diagram 4 above). Netting of failed clearing members' positions significantly reduces the risk for the Clearing House of simultaneous member default.

## Why Eurex Clearing?

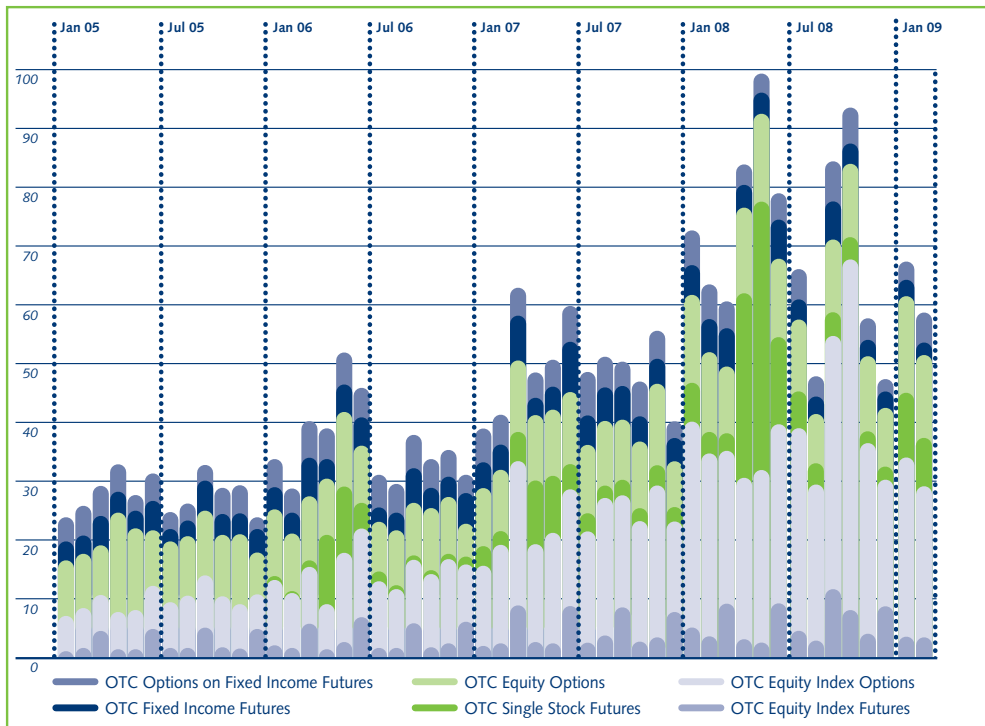
Eurex Clearing is the leading clearer *globally* in the novation of OTC derivatives transactions onto an exchange:

- Since January 2005, 2,290 million contracts have been cleared through Eurex Clearing's OTC facilities.
- In 2008, a monthly average of more than 75 million contracts have been traded – May 2008 saw a record volume of 99.38 million contracts transacted.
- Eurex Clearing provides OTC services in a wide range of asset classes – equity, fixed income *and* carbon<sup>7</sup> (that is CERs and EUAs).
- Eurex Clearing is the only CCP *globally* that performs near time position margining in ten minute intervals throughout the trading day.
- Highest payment and collateral standards – process overnight margin payments in central bank money with collateral pool complying with European Central Bank requirements as accepted for central bank credit facilities with liquidation haircuts.
- Risk reports are provided every ten minutes.

<sup>6</sup> Ratio of the sum of margins to after netting loss.

<sup>7</sup> See Appendix 4, "Clearing of OTC CO<sub>2</sub> Trades".

Diagram 5: Eurex Clearing OTC Volume (in Millions)



## Eurex Flexible Futures and Options<sup>8</sup> – Bringing OTC on Exchange

Eurex's Flexible Futures and Options facility allows institutional investors the flexibility of customized bilateral OTC derivatives transactions with the benefit of a centralized Clearing House and thereby a mitigation of counterparty risk. The OTC Flexible Options functionality enables the customization of more than 800 equity, equity index and fixed income options contracts traded on Eurex<sup>9</sup>.

Eurex Flexible Options allow institutional investors to customize Eurex options in terms of:

- **Exercise price** – The selected exercise price can be defined above the highest exercise price of the corresponding regular option series or may be the lowest exercise price or somewhere in between. Maximum exercise prices for Flexible Options are limited to 2.5 times the highest available standard exercise price in the respective product.
- **Expiration date** – The expiration date can be any exchange day starting from the next business day until the longest currently active standard expiration date of the standard contract.
- **Exercise style** – American or European exercise can be selected.
- **Settlement** – Cash or physical settlement

Diagram 6 below outlines the Eurex Flexible Options screen which facilitates the novation of a bilaterally agreed OTC option position to Eurex Clearing. The efficient STP nature of the transfer of the bilateral transaction to the Clearing House allows for:

- Partial close-out
- Partial exercise
- Trade separation (possibility to split a transaction into several sub-accounts)
- Configurable parameters for automatic exercise

<sup>8</sup> See the Eurex Clearing website: [www.eurexclearing.com](http://www.eurexclearing.com) for the complete outline of Eurex's OTC Trade Facilities and also in appendices 2 and 3 below.

<sup>9</sup> Flexible Options trades require a minimum size equal to the minimum block trade size in the regular traded contract.

Diagram 6: Eurex Flexible Options – Bringing OTC on Exchange

- |                 |                                 |   |
|-----------------|---------------------------------|---|
| 1 Buy or Sell   | 6 American or European Exercise | 11 Trade Classification that is A1=Agency                                 |
| 2 Call or Put   | 7 Cash or Physical settlement   | 12 Counterparty ID  |
| 3 Instrument    | 8 Eurex Member ID               | 13 Account information e.g. give up instructions to another Eurex clearer |
| 4 Maturity Date | 9 Quantity                      | 14 Client information e.g. fund manager, fund etc.                        |
| 5 Strike        | 10 Price of Option              | 15 Further information e.g. ticket number                                 |

An institutional investor, concerned about the counterparty risk about his existing open OTC “look-a-like” derivative positions can transfer the positions (“legacy trades”) from his counterparty to Eurex Clearing. The institutional investor would need to agree with his counterparty to transfer the existing open OTC positions and reopen the positions through the Eurex OTC Flexible Options platform.

Likewise, the Eurex Flexible Futures facility allows asset managers to customize Eurex futures contracts in terms of:

- **Maturity** – Participants of an OTC Flexible Future can create their own maturity date for the transaction: dates can be as early as the next business day or as far out as the maturity for the most distant futures listed on Eurex.
- **Settlement** – In most cases, the ability to negotiate the terms of settlement for Single Stock Futures via either cash settlement or physical delivery.

The OTC Flexible Futures functionality enables the customization of more than 600 Eurex equity and index futures contracts.

## Eurex Release 11.0 – “Driving Risk Management to the Next Level”

On November 10, 2008 Eurex Clearing launched its new software release, Eurex Release 11.0, raising new standards in exchange risk management.

Eurex Clearing continues to set benchmarks for risk management in the derivatives industry. A major focus of the new release was to further enhance risk monitoring and thus improving the safety and integrity of the financial markets overall.

### Highlights

- **Event-driven risk engine** – A new event driven risk engine enables Eurex Clearing members to receive the information they need on a more frequent basis in order to monitor their Non-Clearing Members' trading activity. Core risk data is “pushed” to clients every ten minutes. Thus the engine promotes proactive intraday management of funding requirements, allowing for more cost-effective collateral management.
- **Stop button facility for trading members** – Trading members are able to trigger a “stop” action on specific traders, which cuts specific trader IDs off from the marketplace. Triggering a “stop” action makes it impossible for the trader ID to engage in any further trading activities.
- **Cash routing management engine** – A cash module has been introduced, which centralizes Eurex Clearing's cash flows in order to handle them more efficiently. The engine supports the use of real time gross settlement accounts in the TARGET 2 environment, allowing the use of non German central bank accounts.
- **Handling of multiple currencies per margin class** – Release 11.0 also facilitates the handling of multiple currencies per margin class, which increases the flexibility and operational efficiencies for the handling of cash flows in different currencies.
- **Collateral management engine** – The introduction of the collateral management engine means that the entry of collateral requests will now be electronic. The intraday substitution of collateral facility also allows for more process efficient and cost effective use of valuable collateral.

### Conclusion

The trend to centrally cleared derivatives can only continue – it has major benefits for institutional investors in terms of being able to obtain more competitive pricing, position offset, improved collateral management, an ease and ability to enter and exit positions and probably most important, counterparty risk is mitigated through the Clearing House acting as central counterparty. As Roger Ehrenberg<sup>10</sup> in “Transparency on Trial: The Shift Towards Exchange-Traded Derivatives” said, “Over time, the inefficiency of the OTC market will cause it to take a back seat to the exchanges, and this is a trend that will build momentum over time. Think about Toyota versus GM. Who would have imagined Toyota's success three decades ago? And now they are pulling away. This is how I think of the exchange model versus the OTC model. The changing of the guard is inevitable. Just wait and see.”

<sup>10</sup> Roger Ehrenberg is currently Managing Partner of IA Capital Partners, LLC. Earlier, he held managing positions at Deutsche Bank and Citibank.

## References & Suggested Further Reading

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"Counterparty Risk in Question as major banks sink", IPE Asia, Fourth Quarter 2008.

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"Derivatives Clearing and Settlement: a comparison of central counterparties and alternative structures", Federal Reserve Bank of Chicago, Economic Perspectives Fourth Quarter 2006, R. Bliss & R. Steigerwald.

"Changing post trading arrangements for OTC derivatives", E. Ledrut & C. Upper, BIS Quarterly Review, December 2007.

"Some Talk Up Flight to Exchange-Traded From OTC", Derivatives Week, October 20, 2008.

"Lehman default sharpens focus on counterparty risk", Financial Times, November 16, 2008.

"Derivatives market activity in the first half of 2008", BIS, November 2008.

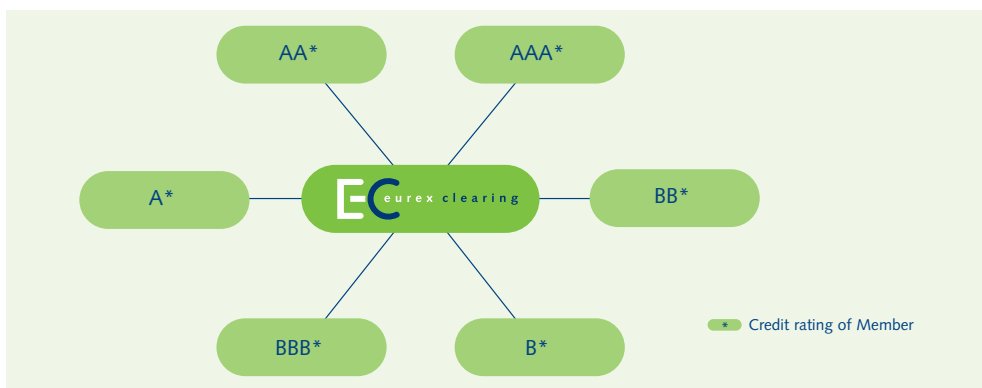
"Institutional Investors see Counterparty Risk as Growing Threat to Global Markets", Greenwich Associates, August 2008.

"Modelling risk in central counterparty clearing houses: a review", R. Knott & A. Mills, Market Infrastructure Division, Bank of England, December 2002.

See Eurex Clearing website: <http://www.eurexclearing.com/index.html> for the complete outline of Eurex's OTC Trade Facilities.

"Eurex Clearing for OTC trading. Our Flexibility keeps you in control". See Eurex Clearing website.

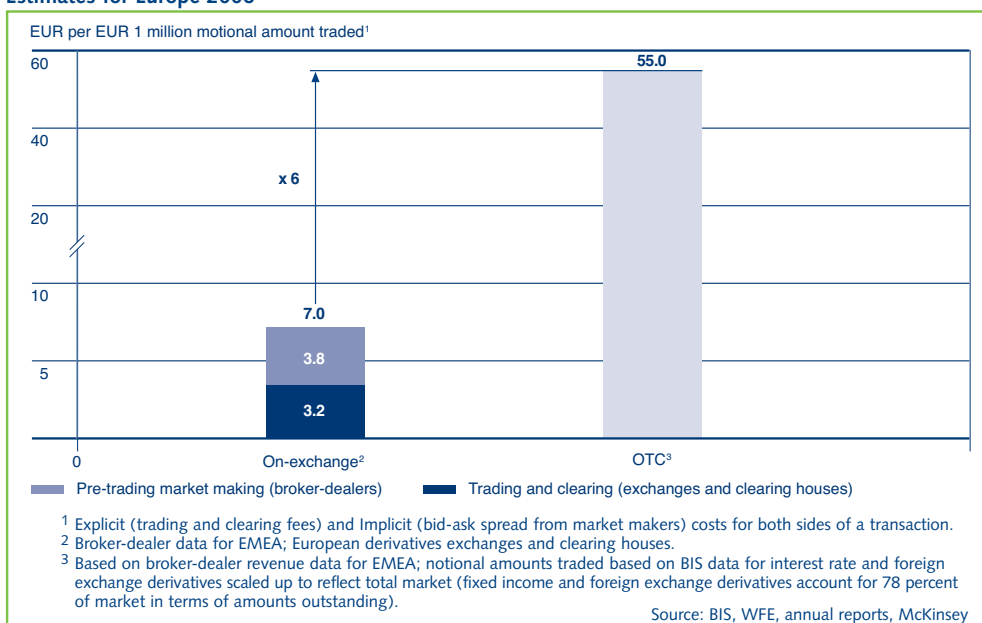
# Appendix 1 – Competitive Pricing through Exchange-Cleared Derivatives



Eurex Clearing stands in between the two counterparties with different credit ratings allowing institutional investors to obtain the most competitive price (and benefit of netting of offsetting positions) regardless of credit rating because of the novation of the OTC transaction to the exchange.

# Appendix 2 – Costs of Trading ETD versus OTC

Estimates for Europe 2006



In "The Global Derivatives Market – An Introduction" the costs of trading ETD compared to OTC were calculated by looking at the total transaction costs that users pay. For exchange-traded derivatives this was the sum of revenues of derivative brokers plus exchange fees. For the OTC segment revenues of brokers were used. Total transaction costs were compared for both segments by dividing these revenues by the notional amount traded on exchange and OTC respectively (using BIS statistics for both segments). In Europe total transaction costs for the exchange segment are EUR 7.0 per EUR 1.0 million notional amount traded. This is approximately eight times less expensive from the customer's point of view where it costs EUR 55 to trade a similar amount. Products traded on exchange are processed in a fully automated way across the value chain reaching into the back office of market participants, while a large share of OTC products is processed manually, which is more costly.

# Appendix 3 – GARP – “Eurex Clearing OTC Trade Facilities – Meeting the Needs of the Asset Management Industry”



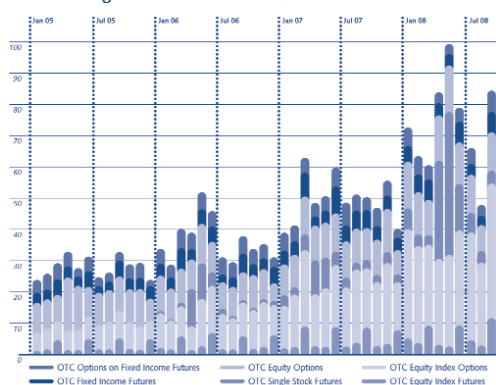
SPONSORED STATEMENT

## Eurex Clearing OTC Trade Facilities – Meeting the Needs of the Asset Management Industry

Given the current turmoil in financial markets the greatest challenge currently facing the asset management industry is counterparty risk. The introduction of the UCITS III legislation, the growth of portable alpha investing and recently, extension (that is 130/30) investing have all contributed to the huge growth in the use of derivatives by the fund management industry. The Eurex Clearing OTC Trade facilities meet the needs of asset managers by allowing the flexibility of customized off-exchange trading in derivatives with the benefit of substantially reduced counterparty risk and standardized clearing and settlement through a central Clearing House – in both equity and fixed income derivative products – with the added benefit of margin offset between existing exchange-traded derivatives positions and the OTC derivative transactions brought on exchange.

Also, recent fee reductions for Eurex Clearing’s OTC transactions have made the Exchange’s OTC services extremely price competitive. Equally Eurex Clearing introduced a new OTC functionality and generally enhanced its OTC service offering. Due to the added benefits Eurex’s OTC Trade volume has shown spectacular growth reaching a record high of 99,383,966 contracts in May 2008.

**Eurex Clearing OTC Trade Facilities – Growth in Trade Volume<sup>1</sup>**



### Eurex Clearing OTC Trade Product Offering

Eurex is providing an extensive range of OTC Trade facilities to meet the asset managers’ needs:

- OTC Block Trade
- OTC Flexible Futures and Options
- OTC Exchange for Physicals – EFPI and EFP Trades
- OTC Exchange for Swaps
- Multilateral Trade Registration

<sup>1</sup> Trade Volume is in millions and is single counted.

### OTC Block Trade

Eurex Clearing’s OTC Block Trade facility (“BTF”) promotes maximum liquidity and trading flexibility for an asset manager, facilitating amongst others, portfolio overlay or GTAA strategies across European asset classes using Eurex products. The BTF allows market participants, to enter off-exchange transactions in Eurex futures and options contracts and yet still have the transactions cleared by Eurex Clearing. The Exchange sets a minimum number of contracts for each specific product admitted to block-trading<sup>2</sup>. For example, Eurex Single Stock Futures and the new Dow Jones EURO STOXX 50® Index Dividend Futures have a minimum block trade limit of just one contract whereas Dow Jones EURO STOXX 50® Index Futures have a block trade limit of 1,000 contracts. Option strategies or option volatility strategies using Eurex futures and options contracts can also use the BTF<sup>3</sup>.

The Eurex Clearing OTC Trade facilities are also very price competitive – fee caps for block trades for equity options have recently been reduced by 50 percent to 75 percent and for Single Stock Futures by up to 83 percent.

### Equity Options

- Fee caps for OTC Block Trades have been reduced to EUR\* 200 for A-account transactions in all equity options. That’s a 50 percent reduction for German, Swiss and Scandinavian equity options.
- Fee caps for OTC Block Trades on P-accounts will be reduced to EUR\* 100 for all equity options, giving a reduction of 50 to 75 percent.

### German, Swiss & Scandinavian Equity Options

|               | A-accounts | P-accounts | M-accounts (RMM/PMM) | M-accounts (AMM) |
|---------------|------------|------------|----------------------|------------------|
| Old Fee Caps* | EUR 400    | EUR 400    | EUR 80               | EUR 40           |
| New Fee Caps* | EUR 200    | EUR 100    | EUR 80               | EUR 40           |

### Other Equity Options

|               | A-accounts | P-accounts | M-accounts (RMM/PMM) | M-accounts (AMM) |
|---------------|------------|------------|----------------------|------------------|
| Old Fee Caps* | EUR 200    | EUR 200    | EUR 40               | EUR 20           |
| New Fee Caps* | EUR 200    | EUR 100    | EUR 40               | EUR 20           |

\* For non EUR-denominated products, converted and rounded amounts in the respective product currency apply.

### Single Stock Futures

- Fees for order book trading will be reduced for all Single Stock Futures products to EUR\* 0.20 per contract.
- Fee caps for block trades will be reduced to EUR\* 200 for all Single Stock Futures products, meaning a reduction of
  - 83 percent for Scandinavian products
  - 66 percent for futures on German and Swiss underlyings
  - 33 percent for most other Single Stock Futures

<sup>2</sup> See [http://www.eurexchange.com/trading/wholesale/block\\_trades\\_en.html](http://www.eurexchange.com/trading/wholesale/block_trades_en.html) for minimum block trade limits for all Eurex contracts.

<sup>3</sup> See [http://www.eurexchange.com/trading/wholesale/vola\\_trades\\_en.html](http://www.eurexchange.com/trading/wholesale/vola_trades_en.html) for combinations of Eurex futures and option contracts acceptable under the block trade facility.

## SPONSORED STATEMENT

### Scandinavian SSFs

|               | Fee per contract** | Fee Cap** |
|---------------|--------------------|-----------|
| Old Fee Caps* | EUR 0.60           | EUR 1,200 |
| New Fee Caps* | EUR 0.20           | EUR 200   |

### German & Swiss SSFs

|               | Fee per contract** | Fee Cap** |
|---------------|--------------------|-----------|
| Old Fee Caps* | EUR 0.30           | EUR 600   |
| New Fee Caps* | EUR 0.20           | EUR 200   |

### Other SSFs

|               | Fee per contract** | Fee Cap** |
|---------------|--------------------|-----------|
| Old Fee Caps* | EUR 0.30           | EUR 300   |
| New Fee Caps* | EUR 0.20           | EUR 200   |

\* For non EUR-denominated products, converted and rounded amounts in the respective product currency apply.

\*\* All accounts.

### OTC Flexible Futures and Options

The Flexible Futures facility allows fund managers to customize their Eurex futures contracts in terms of:

- **Maturity** – Participants of an OTC Flexible Futures trade can create their own maturity date for the transaction: dates can be as early as the next business day or as far out as the maturity for the most distant futures listed on Eurex.
- **Settlement** – In most cases the ability to negotiate the terms of settlement for Single Stock Futures via either cash settlement or physical delivery.

Whereas the Flexible Options facility<sup>4</sup> allows asset managers to customized Eurex options contracts in terms of:

- **Exercise Price** – The selected exercise price can be defined above the highest exercise price of the corresponding regular option series or may be the lowest exercise price that is LEPOs or somewhere in between. Maximum exercise prices for Flexible Options are limited to 2.5 times the highest available standard exercise price in the respective product.
- **Expiration Date** – The expiration date can be any exchange day starting from the next business day until the longest currently active standard expiration date of the standard contract.
- **Exercise Style** – American or European exercise can be selected.
- **Settlement** – Cash or physical settlement.

### OTC Exchange for Physicals (EFPI and EFP) and OTC Exchange for Swaps (EFS)

The OTC EFPI and EFP functionalities<sup>5</sup> allow for the simultaneous purchase (sale) of a Eurex equity index futures (EFPI) or Eurex fixed income futures (EFP) and sale (purchase) of qualifying cash equities or cash bonds whereas the EFS facility<sup>6</sup> allows for the simultaneous

purchase (sale) of a Eurex fixed income and sale (purchase) of a plain vanilla swap. To meet the needs of the asset management industry, the EFP and EFS Trade facilities were recently enhanced to include non-Eurex interest rate futures and duration weighted trades that is yield curve and barbell trades in the EFP functionality and interest rate swaptions in the EFS facility.

The asset manager is now able to trade, for example, Euro-Schatz versus Euro-Bund, a Euro-Bobl/Euro-Schatz/Euro-Bund barbell, EURIBOR Futures versus swaps and swaptions versus Euro-Bobl all off-exchange with the benefit of clearing the futures positions on exchange<sup>7</sup>.

### Multilateral Trade Registration Facility

The innovative Multilateral Trade Registration (MTR) facility allows the entry of block trades with one buyer or seller and several counterparties – instead of entering separate bilateral block trades. For equity options the block trade applies to all partial trades entered via the MTR facility – a significant cost saving to the asset manager. Also, the MTR facility alleviates the administrative burden of dealing in derivatives by reducing the number of transactions the portfolio manager has to record.

### More Benefits at Lower Risks

Trading via the Eurex Clearing OTC Trade functionalities means trading at low costs<sup>8</sup> – recent fee reductions for OTC transactions have made the service extremely price competitive. Currently over 700 Eurex products are available for OTC trading. The Eurex Clearing OTC Trade facilities give the asset management industry the flexibility of trading in tailor-made off-exchange derivative products plus enabling them to enjoy the same benefits as on-exchange customers do: substantially reduced counterparty risk and standardized clearing and settlement processes. By entering their trades via the Eurex Clearing OTC Trade functionalities, asset managers have access to Eurex's state-of-art clearing services.

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<sup>4</sup> The Flexible Futures facility is available for Single Stock Futures, equity index futures and EXTF Futures whereas the Flexible Options facility is also extended to include options on fixed income and money market futures as well as the Equity Options/LEPOs, equity index options and EXTF Options.

<sup>5</sup> See [http://www.eurexexchange.com/trading/wholesale/efpi\\_en.html](http://www.eurexexchange.com/trading/wholesale/efpi_en.html)

<sup>6</sup> See [http://www.eurexexchange.com/trading/wholesale/efs\\_en.html](http://www.eurexexchange.com/trading/wholesale/efs_en.html)

<sup>7</sup> See [http://www.eurexexchange.com/download/trading/flyer\\_enhancement\\_wholesale.pdf](http://www.eurexexchange.com/download/trading/flyer_enhancement_wholesale.pdf)

<sup>8</sup> See Eurox publication "Eurex Clearing, OTC Multilateral Trade Registration, Trade more for less." at [http://www.eurexexchange.com/download/documents/publications/EC\\_OTC.pdf](http://www.eurexexchange.com/download/documents/publications/EC_OTC.pdf)

# Appendix 4 – “Clearing of OTC CO<sub>2</sub> Trades”

The EEX and Eurex emissions trading cooperation, launched in December 2007, combines EEX's energy market membership and connectivity to the European power trading community with Eurex's financial market membership and global distribution network.

### CO<sub>2</sub> Derivatives – Product Offering

| Products               | Product ID | Introduction     |
|------------------------|------------|------------------|
| EUA Futures            | F2PE       | December 5, 2007 |
| CER Futures            | FCER       | March 26, 2008   |
| Options on EUA Futures | O2PE       | April 14, 2008   |

### Opportunities in Clearing Over-the-Counter CO<sub>2</sub> Trading

Trades in EEX/Eurex cooperation products can be cleared by both Eurex Clearing AG (ECAG) and European Commodity Clearing AG (ECC). Physical settlement is carried out by ECC, a specialized Clearing House experienced in the physical delivery of commodities.

The Eurex block trading functionality provides all participants with the possibility to enter bilaterally agreed OTC transactions into the Eurex® system and have them cleared and settled in a standardized way. With this facility you can benefit from the choice of OTC trading while maintaining the advantages of standardized clearing and settlement. The minimum number of contracts for OTC Block Trades is one contract. The benefits of the OTC Block Trade Facility are diverse:

- **Integrated OTC Trading Functionality**

The Block Trade Facility is available via the Eurex front-end trading application. When entered into the system, OTC trades are automatically cleared as regular EEX transactions which allows you to reduce operational costs and risks significantly. There are no size restrictions on block trades in the EEX/Eurex cooperation products.

- **Elimination of Counterparty Risk**

The Clearing House is the central counterparty to all emissions transactions executed on the Eurex® system. The Clearing House limits counterparty risk to a single contractual partner. The inherent benefits for the users of a Clearing House are:

- Decreased cost of capital
- Improved collateral management
- Lower operational costs

- **Competitive Margins Including Cross Margining**

The level of margin is competitive and calculated to cover any contractual risks but to also achieve an optimal degree of security with a minimum amount of collateral. The Clearing House also offers cross margining for CO<sub>2</sub> derivatives such as EUA Futures and CER Futures, independent of whether the trades are executed on-exchange or entered via the Block Trade Facility.

- **Straight-Through Processing**

The Block Trade Facility is fully electronic which gives customers the benefit of straight-through processing (STP). You will benefit from unmatched efficiency throughout the process chain from entering OTC trades to clearing and settlement.

- **Anonymity**

OTC transactions entered on the Eurex® system and cleared are anonymous to the rest of the market.

### OTC Block Trade Entry Window

### Pricing Model

We offer an attractive price model for trading and clearing of our cooperation products.

#### Fee Overview for CO<sub>2</sub> Derivatives

|                                   |                    |
|-----------------------------------|--------------------|
| <b>Trading Fee</b>                | EUR 2 per contract |
| <b>OTC Trade Registration Fee</b> | EUR 2 per contract |
| <b>Clearing Fee</b>               | EUR 1 per contract |
| <b>Physical Delivery Fee</b>      | -                  |

#### Fee Rebates

EEEX and Eurex offer the following trading fee rebates in 2008:

##### EUA Futures

- 50 percent reduction for order book and OTC transactions until the end of 2008
- 75 percent reduction for OTC transactions for legacy trades during the second quarter of 2008

##### CER Futures

- No fees for order book and OTC transactions until the end of 2008

##### EUA Options

- 50 percent reduction for order book and OTC transactions until the end of 2008

#### Fee Rebates for Market Makers

If Market Makers meet their performance criteria, they receive full refund of their trading fees.

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# Appendix 5 – “Enhancement of Eurex Wholesale Trading Facilities”



May 2008

## Enhancement of Eurex Wholesale Trading Facilities

Eurex provides extensive Wholesale facilities for the trading and clearing of larger size orders. Wholesale Trading allows for the entry of off-exchange trades for clearing and margining.

Within the Eurex Wholesale facility, you are able to trade **Exchange for Physicals (EFP)** – this is the simultaneous purchase of a fixed income future and sale of a corresponding basis instrument determined by Eurex Clearing AG and **Exchange for Swaps (EFS)**, which is the simultaneous purchase of a future and a sale of an interest rate swap or swaption denominated in the currency of the future.

As of **March 31, 2008** Eurex has extended the use of the **Exchange for Physicals (EFP) trade facility** to include Eurex and non-Eurex interest rate futures and of the **Exchange for Swaps (EFS) trade facility** to include interest rate swaptions on the reporting leg. The enhancements will apply for both the euro fixed income futures and the CONF Futures.

These innovations will permit maximum flexibility in putting together bond, swap and futures trades (that is duration weighted interest rate curve trades, interest rate spread trades between the Euro-Bund and the swap curve) in combination with Eurex fixed income futures without incurring any execution risk.

There are no block trade limits in the use of the EFP and EFS trade facility, for position generating transactions. The only requirement is the confirmation of an opposite transaction in an admitted underlying instrument (reporting transaction).

### Extension of the Exchange for Physicals (EFP) Trade Facility to Include Eurex and Non-Eurex Interest Rate Futures

As of March 31, 2008, Eurex Clearing AG admitted the following combinations of underlying instruments and fixed income futures contracts for the EFP facility:

|  | Admitted Underlying Instruments   |
|--|---|
| <b>Position-Generating Transaction</b><br>(futures will generate a position in Eurex Clearing) | <b>Reporting Transaction</b><br>(futures will <b>not</b> generate a position in Eurex Clearing) |
| Eurex fixed income futures   | Debt securities <sup>1</sup>  |
| Eurex fixed income futures   | Eurex <sup>2</sup> or non-Eurex money market futures  |
| Eurex fixed income futures   | Eurex or non-Eurex fixed income futures <sup>3</sup>  |

<sup>1</sup> All debt securities which feature price correlation to the exchanged futures contract so that the futures contract represents an appropriate hedge instrument for cash market transactions, may be used as a component for an EFP trade. The cash market transaction underlying to the EFP trade must be denominated in the currency of an OECD member state.

<sup>2</sup> When the reporting transaction is executed on Eurex, these futures have to be traded through the order book or the block trade facility, these trades would then have to meet the minimum block trade size.

<sup>3</sup> Non-Eurex fixed income futures in this context are all those fixed income futures transactions traded at another exchange or off-exchange, with a specification which does not fulfil the essential characteristics of fixed income futures transactions traded at the Eurex Exchanges.

### Example 1<sup>4</sup> – Yield Curve Trade

Sale of 4,000 Eurex Euro-Schatz Futures (Jun08) versus the purchase of 1,014 Eurex Euro-Bund Futures (Jun08) are entered into the EFP trade facility as follows:

Transaction Reporting SELL

Position Generating Transaction BUY

- |  |                                |   |
|--|--------------------------------|---|
| 1 Free format but has to be 12 digits                      | 6 Maturity of futures contract | 11 Open or close                              |
| 2 Futures Quantity   | 7 Currency of futures contract | 12 A, P or M                                  |
| 3 Price of futures contract                                | 8 Futures contract month       | 13 Hedging method shall be set to "DUR"       |
| 4 Not applicable; shall be set to "0"                      | 9 Futures quantity             | 14 Not applicable; select one out of the menu |
| 5 Coupon frequency;<br>Not applicable; shall be set to "1" | 10 Price of futures contract   | 15 Trader ID                                  |

### Example 2 – Spread Trade Between Eurex Fixed Income Futures and Swap Curve

Sale of a strip of EURIBOR Futures (8 maturity months; total number traded contracts is 37) versus the purchase of 48 Eurex Euro-Schatz Futures (Jun 08) are entered into the EFP trade facility as follows:

Transaction Reporting SELL

Position Generating Transaction BUY

- |  |  |   |
|--|--|---|
| 1 Free format but has to be 12 digits                      | 6 Maturity of last futures contract in the strip | 11 Open or close                              |
| 2 Futures Quantity   | 7 Currency of futures contract                   | 12 A, P or M                                  |
| 3 Price of futures contract                                | 8 Futures contract month                         | 13 Hedging method shall be set to "DUR"       |
| 4 Not applicable; shall be set to "0"                      | 9 Futures quantity                               | 14 Not applicable; select one out of the menu |
| 5 Coupon frequency;<br>Not applicable; shall be set to "1" | 10 Price of futures contract                     | 15 Trader ID                                  |

<sup>4</sup> Since the trade entry window of the EFP facility was primarily developed for debt securities, please be aware that the trade entry fields for reporting futures transactions are not displayed with their correct names. For further examples of field mapping for reporting futures please refer to number 8.11 of the General Conditions for Participation.

## Extension of the Exchange for Swaps (EFS) Facility to Include Interest Rate Swaptions

In addition to all interest rate swaps, as of March 31, 2008 the extended EFS trade facility will also accept interest rate swaptions as possible instruments in the scope of an EFS trade.

### Example 3<sup>5</sup> – Swaption Versus Eurex Fixed Income Futures

2yr × 3yr 10 M Payer Swaption hedged with the purchase of duration weighted Eurex Euro-Bobl Futures are entered into the EFS trade facility as follows:

The screenshot shows the 'SIMU: OTC EFS Trade Entry' window with the following fields and values:

- TranNo: 001UI0
- SwapCust1: (empty)
- SwapCust2: (empty)
- SwapType: payer
- StiDate: 31.03.2008
- Nominal: 10.000 (1)
- CpnFixRat: 1.0233 (2)
- CpnFreq: 1
- CpnVarRef: (empty)
- CpnVarOfs: (empty)
- StrtDat: 25.03.2010 (3)
- EndDat: 28.03.2013 (4)
- Curr: EUR (5)
- BUY button
- Exch: XEUR
- Contract: FGBM JUN08 (7)
- Qty: 57 (8)
- Prc: 110,040 (9)
- O/C: P (10)
- Act: (empty)
- Hdg: D (12)
- ExchRate: 1,000000000
- Curr: EUR
- Cpty: SIMA (6)
- TUMbr: (empty)
- Text: (empty)
- Customer: (empty)
- MIOrdNo: (empty)
- TraderID: SIMAATRD001 (13)
- Modify, Delete, Cancel buttons
- Status bar: XEUR 90232 EFS TRADE ENTERED

- |                           |                             |   |
|---------------------------|-----------------------------|---|
| 1 Nominal is in thousands | 5 Currency of swap          | 10 Open or close                        |
| 2 Options Premium         | 6 Counterparty              | 11 A, P or M                            |
| 3 Options start date      | 7 Futures contract month    | 12 Hedging method shall be set to "DUR" |
| 4 Options end date        | 8 Futures quantity          | 13 Trader ID                            |
|                           | 9 Price of futures contract |   |

For further information on the EFP and EFS enhancements, follow the link to the Eurex Circular:  
<http://www.eurexchange.com/download/documents/circulars/cf0552008e.pdf>

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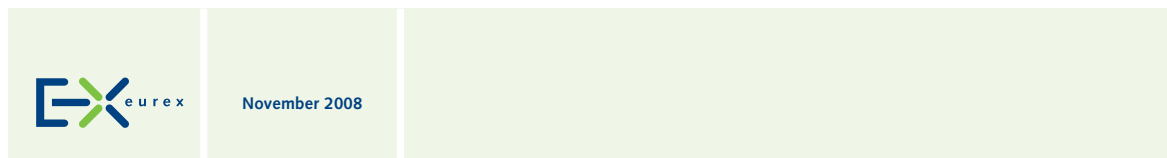
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<sup>5</sup> Since the trade entry window of the EFS facility was primarily developed for interest rate swaps, please be aware that trade entry fields for interest rate swaptions do not comply with field names of the trade entry window. For further examples of field mapping for interest rate swaptions please refer to number 8.3.1 of the General Conditions for Participation.

# Appendix 6 – “Enhancement of Eurex Wholesale Trading Facilities”



## Enhancement of Eurex Wholesale Trading Facilities

As of **November 10, 2008**, Eurex extended the use of the **Exchange for Swaps (EFS) trade facility** to include equity index swaps. The enhancements will apply for all Eurex equity index futures.

This extension permits maximum flexibility in transacting swap trades in combination with Eurex equity index futures without incurring any execution risk. EFS trades are not subject to block trade threshold levels but are based on the related exchange of an underlying swap and futures bilaterally agreed between counterparties.

### Extension of the Exchange for Swaps (EFS) Trade Facility to Include Eurex Equity Index Futures

As of November 10, 2008, Eurex Clearing admitted the following combination of underlying instruments and equity index futures contracts for the EFS facility:

| Admitted Underlying Instruments   |  |
|---|--|
| <b>Reporting Transaction</b><br>(a swap cash position will not generate a position in Eurex Clearing) | <b>Position-generating Transaction</b><br>(futures will generate a position in Eurex Clearing) |
| Equity index swap <sup>1</sup>  | Eurex equity index futures   |

Since the trade entry window of the EFS facility was primarily developed for the interest rate swaps, users should be aware that the trade entry titles for reporting swap transactions are more relevant to that market. To understand the field mapping for reporting swap transactions please see the following example and paragraph 8.3.1 of the General Conditions for Participation, which can be found on [www.eurexchange.com](http://www.eurexchange.com) > Trading > Wholesale Trading.

#### Example:

A sector basket swap hedged with the purchase of Eurex Dow Jones EURO STOXX® Banks Futures is entered into the EFS trade facility as follows:

| Reporting Transaction | Pay                 |
|-----------------------|---------------------|
| Nominal 1,000         | Nominal in thousand |
| CpnFixRat 3.25        | Rate of Return      |
| CpnFrq 4              | Coupon frequency    |
| Strt Date 01.12.2008  | Start date of swap  |
| End Date 30.09.2010   | End date of swap    |
| Curr EUR              | Currency of swap    |

<sup>1</sup> OTC equity index swaps where

a) the share basket reflected via the swap shall be composed of at least ten different index components or a number of stock certificates which represent at least half of the stock index underlying the futures contract;

b) the market value of the part of the share basket reflected via the swap, the values of which are part of the stock index underlying the futures contract, shall be at minimum 20 percent of the market value of the entire cash transaction; all single shares in the share basket reflected via the swap shall be part of the Dow Jones STOXX® TMI Index, the Dow Jones Global Titans 50 Index<sup>SM</sup> (EUR), the Dow Jones Global Titans 50 Index<sup>SM</sup> (USD), the Dow Jones Sector Titans Indexes<sup>SM</sup>, the MSCI Russia Index or the RDXxt® USD – RDX Extended Index. Moreover the equity index swap should have been written under the terms of an ISDA® Master Agreement.

| Position-generating Transaction |             | Pay                                 |
|---------------------------------|-------------|-------------------------------------|
| Contract                        | FESB        | Futures contract month              |
| Qty                             | 150         | Futures quantity                    |
| Prc                             | 145.0       | Price of futures contract           |
| O/C                             | O           | Open or close                       |
| Act                             | A1          | A, P or M                           |
| Hdg                             | DUR         | Hedging method will be set to "DUR" |
| Cpty                            | SIMAE       | Counterparty                        |
| Trader ID                       | GDBXXINF001 | Trader ID                           |

In order to make futures a suitable instrument for hedging the cash market transaction, the number of traded futures should have a specific ratio to the market value of the share basket, which is reflected by the equity index swap.

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