Understanding the Consequences of the Use of Central Clearing on Counterparty Risk

Marcus Zickwolff
Head of Trading & Clearing System Design, Eurex Group

London, February 01, 2012



Eurex Exchange / International Securities Exchange / Eurex Clearing / Eurex Bonds / Eurex Repo

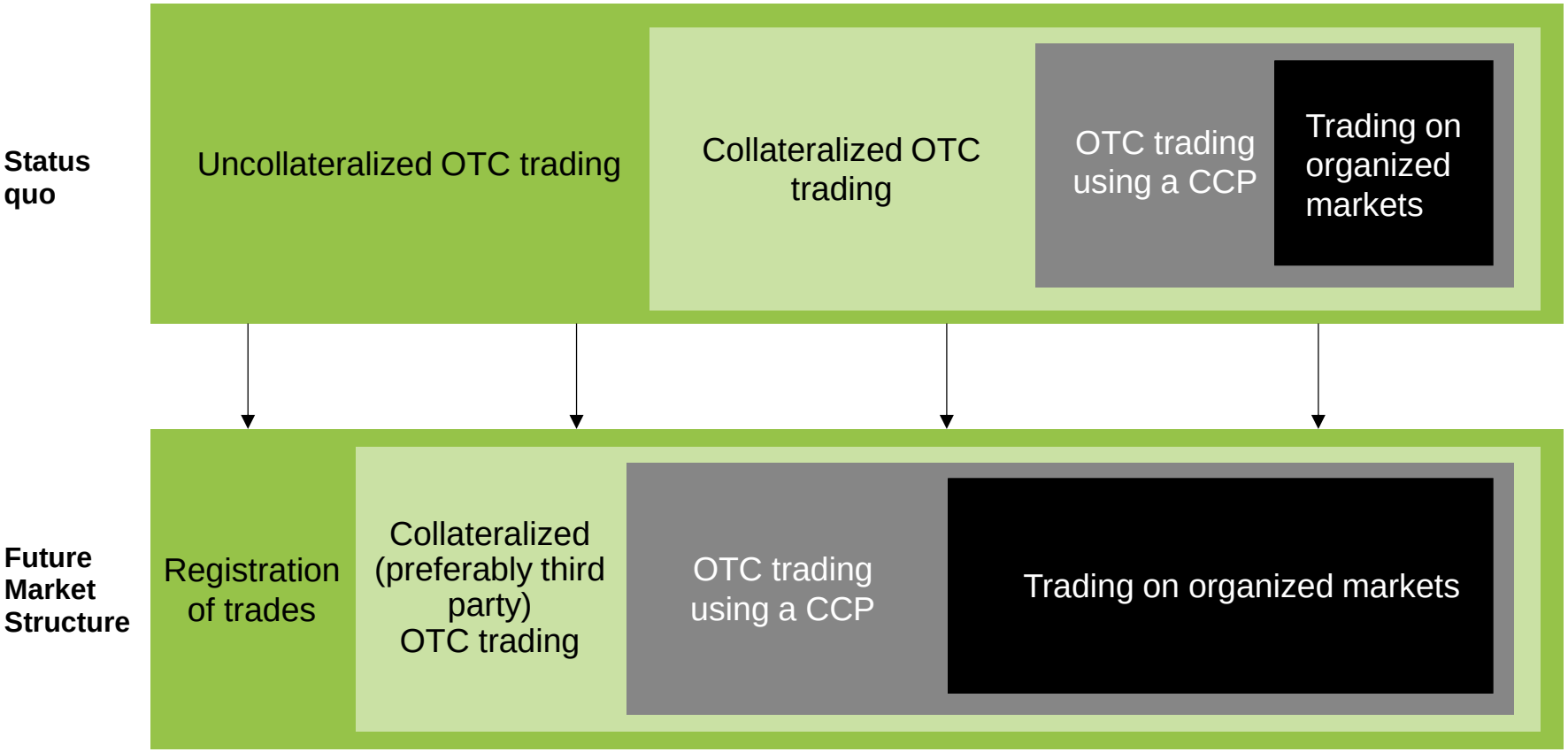
Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Major regulatory initiatives: Market safety as core objective

	Rule Set	Scope	Assessment
Global	Basel III	• Strengthen banking sector regulation, supervision and risk management • Improve shock absorption, risk management, governance and banks' transparency and disclosures	• Initiative has been adopted into EU regulation • To avoid regulatory arbitrage, all regions to adopt principles
Global	CPSS - IOSCO	• Review of existing standards for financial market infrastructures/FMIs (CCPs, SSSs, CSDs and TRs) • New and more demanding international standards for FMIs to be more robust & better placed to withstand financial shocks	• Review and response for CCP and CSD arms completed • World-wide harmonization & and fine-tuning of principles required
Europe	EMIR	• Reporting and clearing obligation for OTC derivatives, and defining measures reducing risks of bilaterally cleared OTC derivatives • Common rule setting for CCPs and trade repositories	• Regulation currently discussed in EU institutions; publication expected end of year
Europe	CRD IV	• The Capital Requirements Directive transposes Basel III requirements into European Regulation	• In Europe it is high priority to pursue the Basel III standards
Europe	MiFID	• Creating a robust common regulatory framework for Europe's securities markets • Leading to greater market transparency and efficiency, as well as investor protection	• MiFID review ended in Q1/2011 • EU Commission proposals in Q4/2011
US	Dodd-Frank	• Promote financial stability of the US by improving accountability and transparency in the financial system • Protect American taxpayer by ending bailouts, to protect consumers from abusive financial services practices	• Dodd-Frank Act partly in effect already

Objective of future market structure



☐ Box size represents the notional amount outstanding

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Objectives and aspirations for central clearing

CCPs increase market safety and integrity by

- Mitigating and management of counterparty risk
- Mitigating liquidity & operational risks
- Addressing information asymmetries
- Reducing complexity and increasing efficiency
- Moving OTC traded derivatives from bilateral settlement to clearing via a CCP is the most effective way of reducing the described systemic risk inherent in the global OTC segment

Most important function of a clearing house is to protect and stabilize the markets and its participants

Markets / Regulators

- Transfer of client position to stabilize markets, avoid adverse price movements and protect exchange integrity
- Avoid knock-on effects on other market participants to reduce systemic risks
- Stable and transparent markets resulting in increased market efficiency

Clearing Members

- Reduction of capital costs through passing through of client collateral
- Low operational impact – use of existing interfaces and processes (in particular substitution of collateral)
- Minimal impact on the overall Clearing Fund in case of Clearing Member default

NCMs / Clients

- Continued trading in the event of Clearing Member default
- Transfer of positions to new Clearing Member to allow continuation of established hedge positions
- Avoid double funding when transferring positions where possible
- Protection of assets – achieve portability or at least preferential rights in an insolvency situation
- Choice of protection level to allow risk/cost considerations

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Financial instruments universe to be cleared

Users	Securities		Derivatives	
	On-exchange	OTC	On-exchange	OTC
Retail	• Equities • Bonds		• Equity-linked derivatives[1)]	• CFDs
	• ETFs/ETCs/ETNs • Certificates (e.g. index or bonus certificates) • Warrants • Funds/UCITS			
Wholesale/ professional	• Equities • Bonds • ETFs/ETCs/ETNs • Funds/UCITS		• Fixed-income derivatives • Equity-linked derivatives • Commodity derivatives	
		• Structured credit-linked securities (CDOs, MBS etc.) • Other ABS		• Foreign exchange derivatives • Credit derivatives

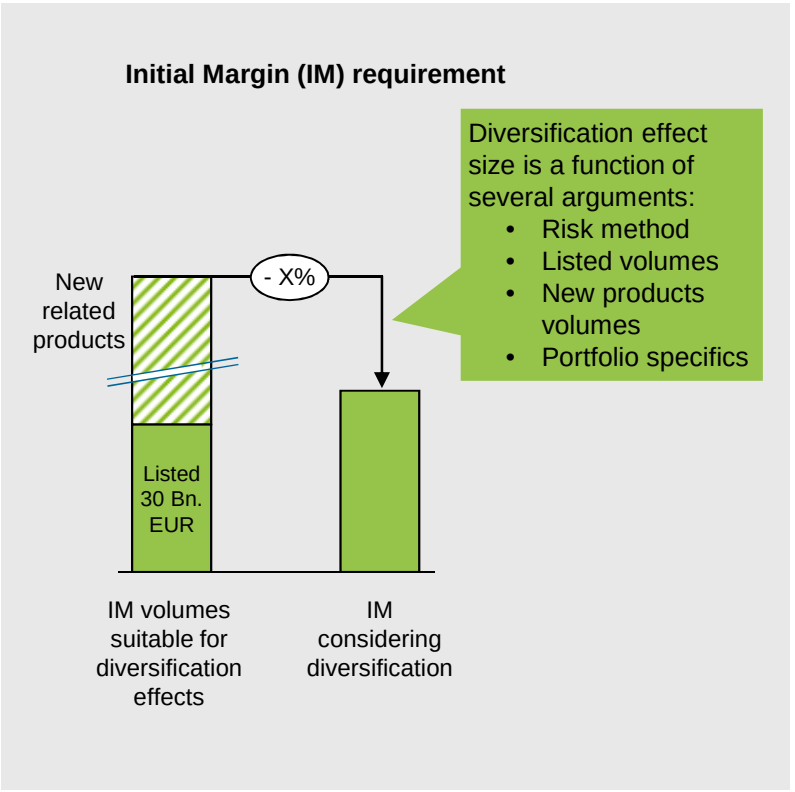
1) Only relevant in few regions, e.g. equity options in the US and the Netherlands, and equity index futures and options in Korea; negligible in most of Europe

Capital efficiency: Portfolio margining with Eurex Clearing benchmark products – Eurex Clearing Prisma

Increased capital efficiency through next generation portfolio risk management

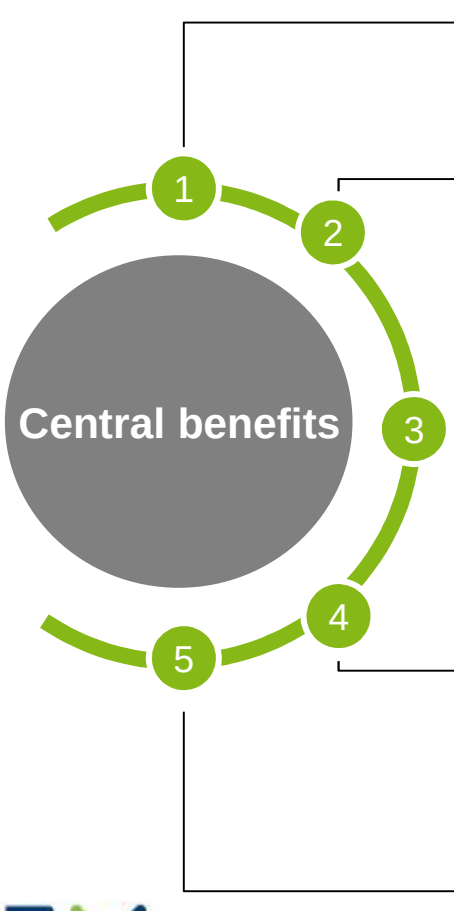
Benefits

- Portfolio risk management provides optimal capital efficiency without taking additional risk onto the clearing house
- Risk netting between existing open interest in listed benchmark products and for new OTC products
- Existing risk management infrastructure is leveraged to allow low operational entry hurdles for existing and new customers



Benefits are derived through the methodical cornerstones of the next generation risk management model

Key benefits for customers



Capital Efficiency

- More accurate risk netting effects for listed, and between listed and OTC positions.
- Higher capital efficiency for customers through risk calculation on portfolio basis.

Accuracy

- Cross-product scenarios enable consistent way to account for portfolio correlation and diversification effects.
- Risk covered at 99% through margin calculation - consisting of a
  - Mark to market component
  - Forward looking component
  - Adequate liquidation time horizon

Robustness

- Adjustments to enable stable margin requirements: Concentration, uncertainty in correlations, model error adjustment if compression is used.
- Flooring for stability: Stressed period scenarios and dynamic volatility scaling to at least long run volatility percentiles.

Consistency

- Aligned default management process between listed and OTC.
- Positions deemed suitable for simultaneous liquidation are logically assigned to the same Liquidation Group.
- Risk offsets are only granted within the same Liquidation Group (e.g. Equity, Commodity or Fixed Income).

Flexibility

- Reduced time-to-market for new products.

Agenda

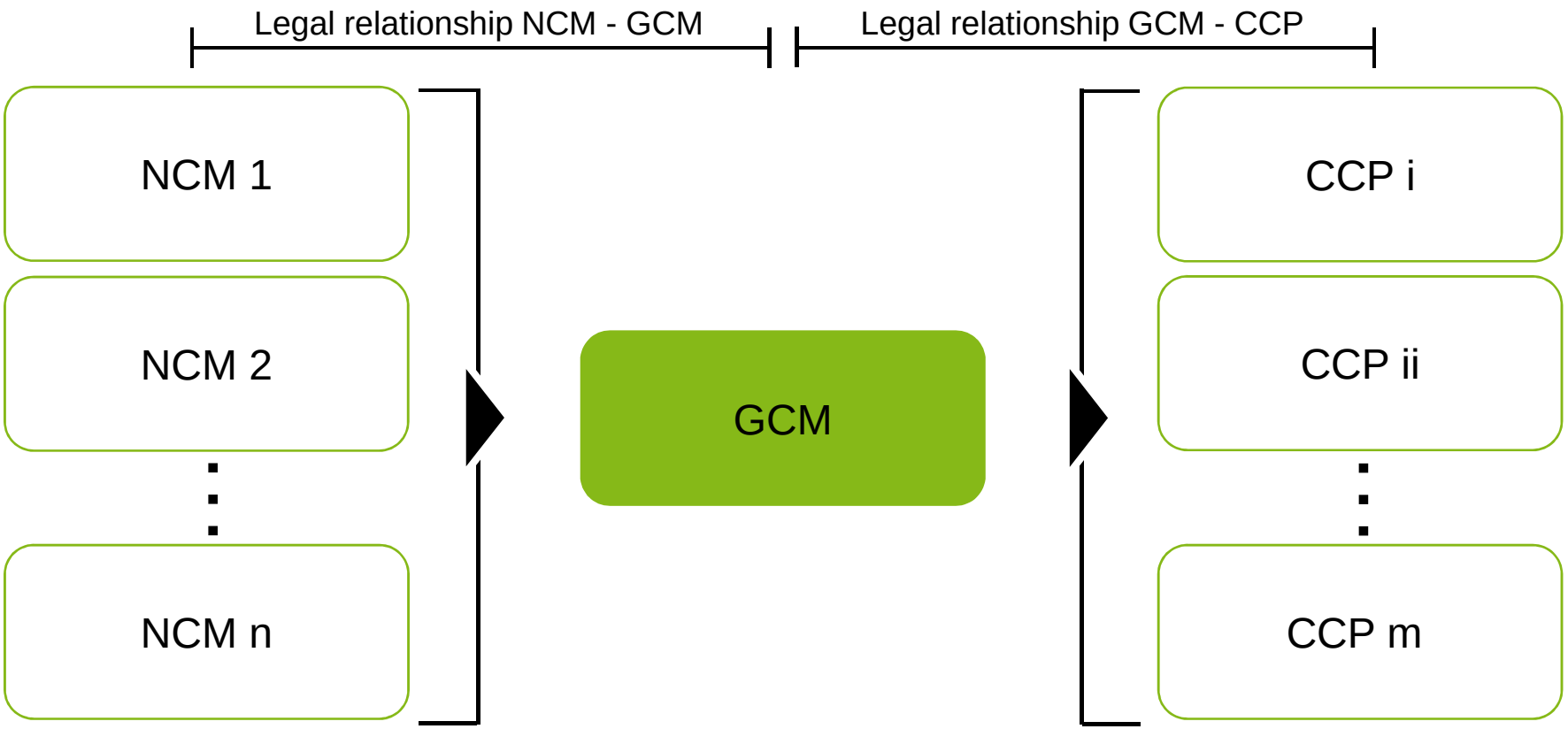
- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

CCPs cooperate via their trade associations to foster the dialogue with regulators and industry

www.ccp12.org

www.EACHORG.com

GCM model interlinks CCPs today and tomorrow



- The GCM is responsible for the risk management of the NCMs
- CCPs provide the risk management for GCMs and ensure the transmission of data necessary to enable GCMs to risk manage their NCMs

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

CCPs are strongly regulated and supervised

Regulations

- CPSS-IOSCO Principles for FMIs
- European Market Infrastructure Regulation (EMIR)
- MiFID / MiFIR
- Basel III with explicit rules about the capitalisation of bank exposures to CCPs
- CRD IV as the European transmission of Basel III
- Dodd – Frank Consumer Protection Act

Supervisors

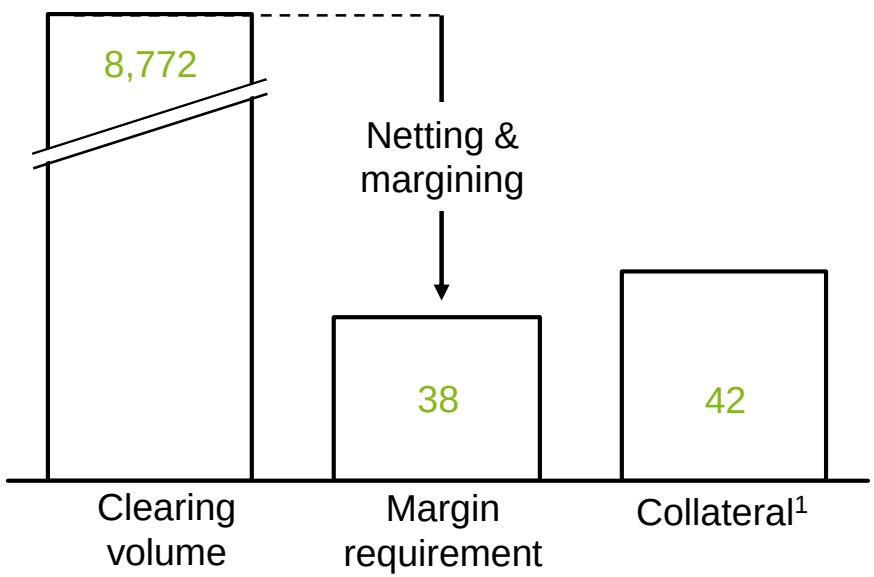
- International Monetary Fund (IMF)
- European Securities and Markets Authority (ESMA)
- National supervisors in EU
- European System of Central Banks (ESCB)
- National Central Banks in EU
- 3rd country supervisors (e.g. SEC, CFTC, FINMA)

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Eurex Clearing – Counterparty risk effectively covered by collateralization and lines of defense

CCP risk management



Lines of defence

1. Liquidation of open positions (Defaulting clearing member)
2. Liquidation of collateral
3. Clearing fund contribution
4. Eurex reserves
5. Eurex Clearing AG guarantee fund
6. Eurex Clearing AG equity capital

[1] Cash and securities collateral after haircut, cash collateral ~ 9% of total

Source: Eurex Clearing

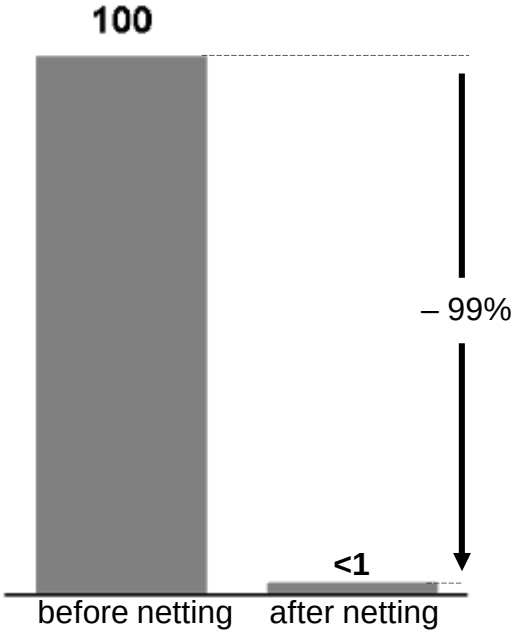
Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Netting efficiency – multilateral (CCP) netting

Exposure before netting = 100

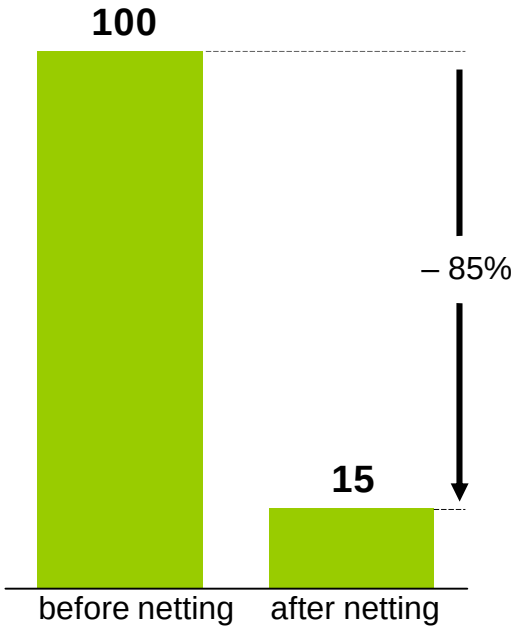
Multilateral (CCP) netting in an on-exchange market[1)]



Netting efficiency – bilateral netting

Exposure before netting = 100

Bilateral netting in an OTC market[2)]

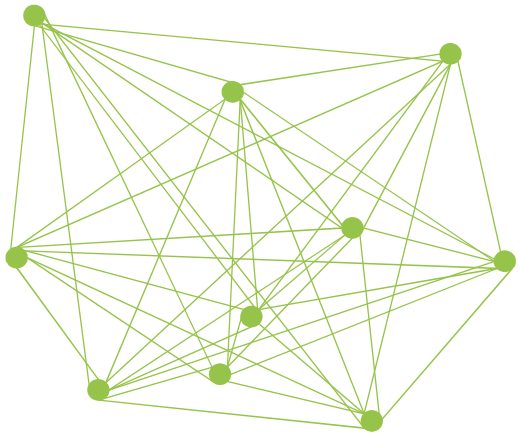


1) Eurex Clearing example
2) Netting efficiency calculated as gross credit exposure/gross market value, including both netting and offsetting of netted positions under legally enforceable bilateral netting agreements

Source: Eurex, BIS

Complexity reduction through CCP clearing

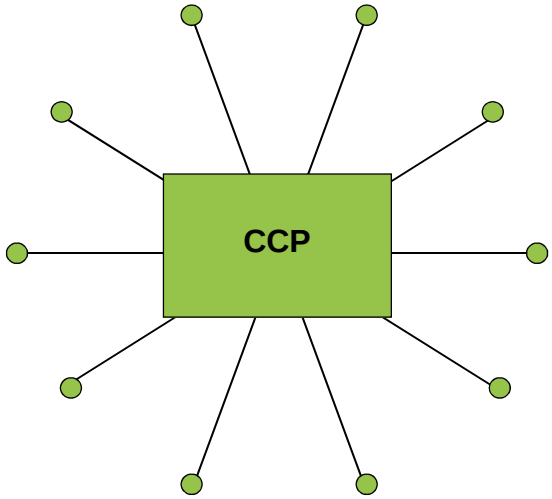
Bilateral market organization



10 market participants
90 counterparty relations

– 89%

Multilateral market organization via CCP



10 market participants
10 counterparty relations

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Eurex Clearing's general rules for collateral

Admission and limitation criteria are aligned with regulatory requirements

Eligibility

- Collateral needs to fulfill quality, liquidity and accessibility criteria
- Collateral is composed of highly liquid security collateral as well as of central bank or commercial bank cash collateral (possibly in a mandatory portion)

Exceptions

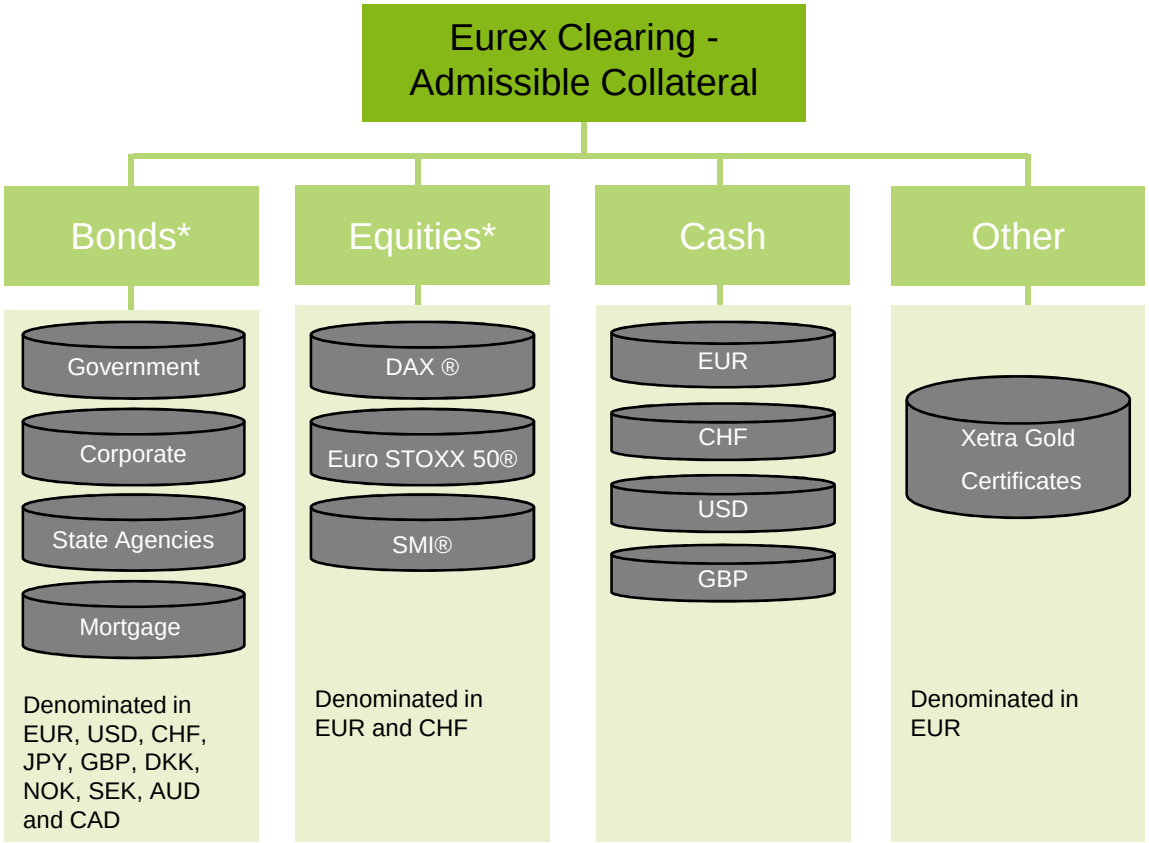
- Own issues* are not accepted as collateral due to pro-cyclical effects (wrong-way risk). Enhancement to close link** securities prohibition for same reason
- Debt Securities that have a remaining term of 15 calendar days or less are not accepted as collateral

Concentration Limits

- At Clearinghouse level:
  - For bonds the admissible proportion of the issued capital is 25%
  - For equities the admissible proportion of free float is 5%
- At Clearing Member level:
  - A maximum of 30% of the required collateral can be deposited in equities

* Securities issued by the collateral provider
** Securities issued by companies affiliated with the collateral provider

Eurex Clearing offers a variety of services to guarantee optimal usage of provided collateral



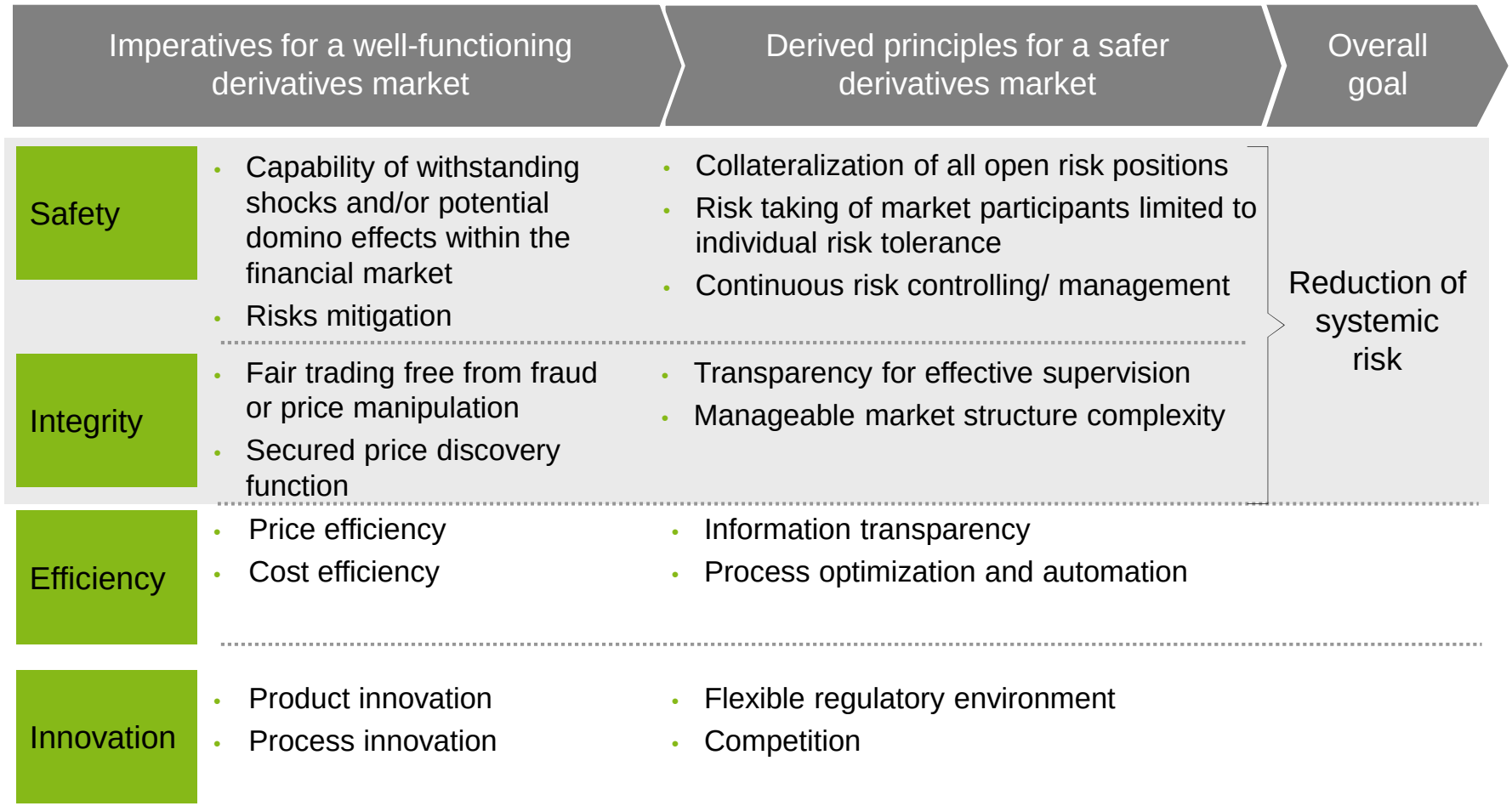
* Securities are deposited to pledged securities accounts at Clearstream Banking Frankfurt AG (CBF) or SegaInterSettle Zurich (SIS)

- Eurex Clearing accepts a broad range of securities as collateral, approximately 25,000 ISINs
- Overall collateral pool amounts to 42bn EUR, 36bn of which is in securities
- Online processing including collateral substitution
- Real time update of collateral balances
- The full list of eligible collateral can be found under: http://www.eurexclearing.com/risk/parameters_en.html

Agenda

- Objectives and aspirations for central clearing
- To what extent can central clearing actually meet objectives
- How many central clearers
- Coordinating central clearers – how shall central clearing counterparties cooperate
- How do we avoid ”CCP arbitrage”
- Counterparty credit risk mitigation
- Bilateral and multilateral netting
- Concentration risk considerations
- Systemic risk considerations

Safety and integrity of the derivatives market need to be ensured

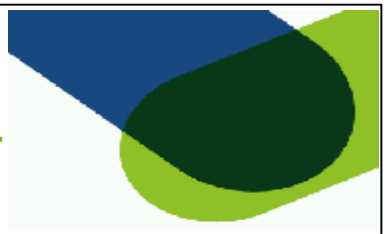


Source: Geithner 2008, Bernanke 2008, ECB 2008, Larosière 2009 etc.

Eurex Clearing: Safer due to reduced systemic risk

Eurex Clearing's main concern is to provide a safer market, which is needed if financial products are to deliver their full economic benefits.

- **A safer derivatives market is transparent, to inspire trust**
- **It's efficient, so processes are simple and capital costs are lower**
- **It ensures that investors' positions are protected**
- **And above all it's neutral, so that counterparty risk is mitigated**



Which is exactly what Eurex Clearing helps to provide.

Because the more people have faith in the markets, the more they'll feel clear to trade.

© Eurex 2012
Deutsche Börse AG (DBAG), Clearstream Banking AG (Clearstream), Eurex Frankfurt AG, Eurex Clearing AG (Eurex Clearing) as well as Eurex Bonds GmbH (Eurex Bonds) and Eurex Repo GmbH (Eurex Repo) are corporate entities and are registered under German law. Eurex Zürich AG is a corporate entity and is registered under Swiss law. Clearstream Banking S.A. is a corporate entity and is registered under Luxembourg law. U.S. Exchange Holdings, Inc. and International Securities Exchange Holdings, Inc. (ISE) are corporate entities and are registered under U.S. American law. Eurex Frankfurt AG (Eurex) is the administrating and operating institution of Eurex Deutschland. Eurex Deutschland and Eurex Zürich AG are in the following referred to as the "Eurex Exchanges".
All intellectual property, proprietary and other rights and interests in this publication and the subject matter hereof (other than certain trademarks and service marks listed below) are owned by DBAG and its affiliates and subsidiaries including, without limitation, all patent, registered design, copyright, trademark and service mark rights. While reasonable care has been taken in the preparation of this publication to provide details that are accurate and not misleading at the time of publication DBAG, Clearstream, Eurex, Eurex Clearing, Eurex Bonds, Eurex Repo as well as the Eurex Exchanges and their respective servants and agents (a) do not make any representations or warranties regarding the information contained herein, whether express or implied, including without limitation any implied warranty of merchantability or fitness for a particular purpose or any warranty with respect to the accuracy, correctness, quality, completeness or timeliness of such information, and (b) shall not be responsible or liable for any third party's use of any information contained herein under any circumstances, including, without limitation, in connection with actual trading or otherwise or for any errors or omissions contained in this publication.
This publication is published for information purposes only and shall not constitute investment advice respectively does not constitute an offer, solicitation or recommendation to acquire or dispose of any investment or to engage in any other transaction. This publication is not intended for solicitation purposes but only for use as general information. All descriptions, examples and calculations contained in this publication are for illustrative purposes only.
Eurex and Eurex Clearing offer services directly to members of the Eurex exchanges respectively to clearing members of Eurex Clearing. Those who desire to trade any products available on the Eurex market or who desire to offer and sell any such products to others or who desire to possess a clearing license of Eurex Clearing in order to participate in the clearing process provided by Eurex Clearing, should consider legal and regulatory requirements of those jurisdictions relevant to them, as well as the risks associated with such products, before doing so.
Eurex derivatives (other than EURO STOXX 50® Index Futures contracts, EURO STOXX® Select Dividend 30 Index Futures contracts, STOXX Europe 50® Index Futures contracts, STOXX® Europe 600 Index Futures contracts, STOXX® Europe Large/Mid/Small 200 Index Futures contracts, EURO STOXX® Banks Futures contracts, STOXX® Europe 600 Banks/Industrial Goods & Services/Insurance/Media/Personal & Household Goods/Travel & Leisure/Utilities Futures contracts, Dow Jones Global Titans 50 IndexSM Futures contracts, DAX® Futures contracts, MDAX® Futures contracts, TecDAX® Futures contracts, SMIM® Futures contracts, SLI Swiss Leader Index® Futures contracts, Eurex inflation/commodity/weather/property and interest rate derivatives) are currently not available for offer, sale or trading in the United States or by United States persons.
Trademarks and Service Marks
Buxl®, DAX®, DivDAX®, eb.rexx®, Eurex®, Eurex Bonds®, Eurex Repo®, Eurex Strategy WizardSM, Euro GC Pooling®, EXTF®, FDAX®, FWB®, GC Pooling®, GCPI®, MDAX®, ODAX®, SDAX®, TecDAX®, USD GC Pooling®, VDAX®, VDAX-NEW®, Xetra® and XTF Exchange Traded Funds® are registered trademarks of DBAG.
Phelix Base® and Phelix Peak® are registered trademarks of European Energy Exchange AG (EEX).
The service marks MSCI Russia and MSCI Japan are the exclusive property of MSCI Barra.
iTraxx® is a registered trademark of International Index Company Limited (IIC) and has been licensed for the use by Eurex. IIC does not approve, endorse or recommend Eurex or iTraxx® Europe 5-year Index Futures, iTraxx® Europe HiVol 5-year Index Futures and iTraxx® Europe Crossover 5-year Index Futures.
Eurex is solely responsible for the creation of the Eurex iTraxx® Credit Futures contracts, their trading and market surveillance. ISDA® neither sponsors nor endorses the product's use. ISDA® is a registered trademark of the International Swaps and Derivatives Association, Inc.
IPD UK Annual All Property Index is a registered trademark of Investment Property Databank Ltd. IPD and has been licensed for the use by Eurex for derivatives.
SLI®, SMI®, SMIM®, and VSMI® are registered trademarks of SIX Swiss Exchange AG.
The STOXX® indices, the data included therein and the trademarks used in the index names are the intellectual property of STOXX Limited, Zurich, Switzerland and/or its licensors which is used by Eurex Frankfurt AG under license. Eurex derivatives based on the STOXX® indices are in no way sponsored, endorsed, sold or promoted by STOXX and its licensors and neither STOXX nor its licensors shall have any liability with respect thereto.
Dow Jones, Dow Jones Global Titans 50 IndexSM and Dow Jones Sector Titans IndexesSM are service marks of Dow Jones & Company, Inc. Dow Jones-UBS Commodity IndexSM and any related sub-indexes are service marks of Dow Jones & Company, Inc. and UBS AG.
All derivatives based on these indexes are not sponsored, endorsed, sold or promoted by STOXX Ltd., Dow Jones & Company, Inc. or UBS AG, and neither party makes any representation regarding the advisability of trading or of investing in such products.
All references to London Gold and Silver Fixing prices are used with the permission of The London Gold Market Fixing Limited as well as The London Silver Market Fixing Limited, which for the avoidance of doubt has no involvement with and accepts no responsibility whatsoever for the underlying product to which the Fixing prices may be referenced.
PCS® and Property Claim Services® are registered trademarks of ISO Services, Inc.
The names of other companies and third party products may be trademarks or service marks of their respective owners.