EURX

Whitepaper

Capital efficiencies through direct access repo clearing models for the buy-side

Executive summary

1. Regulatory capital requirements are driving banks to carefully ration scarce balance sheet capacity, with repo markets most significantly impacted.

2. Eurex's ISA Direct models allow buy-side firms to directly access CCPs, which offers substantial balance sheet and capital efficiencies for banks and creates capacity for business growth.

3. Buy-side firms benefit from broader access to funding and investment sources and the potential for more attractive execution terms.

4. Demonstrated stability of cleared European repo markets will further support financial stability and monetary policy transmission objectives.

Introduction

Banks and other complex financial institutions continue to face challenges in meeting return on equity (ROE) expectations. This is due to the substantial balance sheet de-risking and unprecedented regulatory reform in the wake of the global financial crisis of 2007/08 and subsequent market conditions such as the European sovereign debt and the recent COVID-19 crises.

The trading of repurchase agreements (repo) is a cornerstone of the wholesale financial markets. Repo markets provide a core source of funding, facilitate collateral mobilization, and are a key transmission mechanism for monetary policy. However, post-crisis reforms to banking institutions' capital and liquidity requirements have profoundly impacted the repo market.

While the capital requirements for repo transactions are very low from a risk-based capital perspective due to their short-term and over-collateralized nature, these transactions consume substantial balance sheet capacity under the Basel III Leverage Ratio measure and the Global Systemically Important Bank (GSIB) framework. It can be shown that the capital costs of repo trading are not adequately reflected in bid-offer spreads, indicating a level of cross-subsidization which is not sustainable in the longer term. Notwithstanding, repo market-making is integral to the service offering of large wholesale banking institutions. Thus, these firms must consider options and initiatives to reduce their balance sheet, leverage-based capital, and liquidity (e.g., NSFR) costs.

Repo trading portfolios run by banking institutions involving multiple counterparties trading on a bilateral basis are generally structured as matched books. However, accounting and regulatory (leverage) standards report repo trading portfolios on a gross basis (even for matched books). The netting of repo and reverse repo positions is only permitted under very restrictive criteria. In this regard, clearinghouses are well placed to offer solutions for balance sheet optimization. The novation of trades to the clearinghouse breaks the nexus between the original counterparties, with the clearinghouse becoming the buyer to every seller and the seller to every buyer. This permits a level of multilateral netting not otherwise available in bilateral trading.

The substantial recent innovation in the clearing landscape for repo market transactions offers tremendous opportunities for banking institutions to maintain their fixed income market service offerings while optimizing scarce balance sheet capacity and bringing greater alignment between capital charges and pricing. Eurex Clearing has several access models available that enable clients (sell-side and buy-side) of banking institutions to access the clearinghouse directly. While some of these models require banking institutions to continue to participate as clearing agents (with ensuing obligations such as default fund contributions, bidding obligations and indemnities), the potential balance sheet relief is substantial. With balance sheet relief and the associated capital efficiencies, banking institutions create capacity for expanded business.

Buy-side firms benefit from broader access to funding and investment sources and the potential for more attractive execution terms, operational efficiencies, reduced documentation and asset protection.

The European cleared repo market has proven to be remarkably resilient in periods of crisis and complements central bank actions in stabilizing financial markets. Adopting direct access models by the buy-side will further support central bank financial stability and monetary policy transmission objectives.

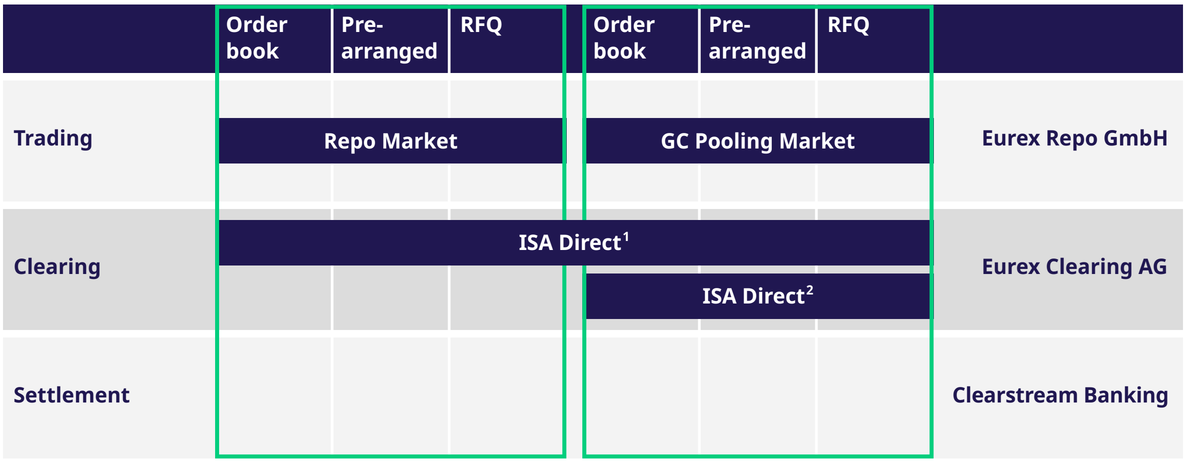
This whitepaper provides a case study that explores Eurex's repo clearing models for sell-side and buy-side clients and the opportunities they afford for balance sheet, leverage, and risk-based capital optimization.

Repo Clearing Models

Eurex is a leading provider for international financing in the secured money market business. Its highly liquid marketplace combines state-of-the-art electronic trading with the efficiency and safety of clearing as well as standardized collateral and risk management and settlement for secured funding and financing transactions.

The Special Repo and GC Pooling segments offer trading opportunities with fully integrated trading, clearing and settlement, as illustrated in Figure 1. As soon as a trade is concluded, Eurex Clearing steps in as central counterparty (CCP) and performs comprehensive risk and delivery management. Eurex Clearing's suite of clearing access models is summarized in Figure 2.

Figure 1. Eurex Repo trading solutions



[1] ISA Direct Clearing Member [2] ISA Direct Light License Holder

Figure 2. Sell-side and buy-side clearing models

Clearing Model	Business scope	Use case		Role of Clearing Agent	Example client types
		Cash Provider	Cash Taker		
General Clearing	House and client	X	X	n/a	Large dealer banks
Direct Clearing	House and affiliate	X	X	n/a	Banks
ISA Direct Light License Holder	House business	X Always (net) Cash provider	(X)	n/a	Corporates, Pension Funds, Insurance firms, Money Market Funds
ISA Direct Clearing Member	House business	X	X	Default fund contributions and DMP[3] obligations	Pension Funds, Asset Managers, Insurance Firms
ISA Direct Indemnified Clearing Member	House business	X	X	Default fund contributions, DMP[3] obligations and indemnification	Hedge Funds

[3] DMP: Default Management Process

Case study

In this case study, we introduce a fictional dealer bank, Diamond Capital Europe SE ("DCESE"). DCESE's trading portfolio consists of:

- **sovereign, bank and corporate bond inventory (€20 Bn Notional) for fixed income market-making and trading, pledges under repurchase agreements and liquidity management**
- **a matched/internalized repo market-making book (€25 Bn Notional) supporting broker-dealers; banks; insurance; asset management, pension funds and hedge funds**
- **a large directional interest rates derivative portfolio (€300 Bn Net Notional) supporting leveraged and unleveraged managed funds clients**

DCESE's portfolio is funded through a combination of short-term and long-term debt, equity, repurchase agreements and derivative liabilities. The trading position has become capital constrained, primarily due to the large leverage exposure associated with the repo-matched book.

Repo market-making is integral to the DCESE's franchise and service offering and the firm must thus consider options and initiatives to reduce its leverage exposure. DCESE does not utilize any CCP clearing for its repo book at the outset, but this changes in the course of the case study.

The case study assumes that the initial bilateral repo trading portfolio is fully internalized, matched and fully market risk neutral. This means that every trade with a repo seller is matched with a repo buyer in terms of term and underlying collateral and cash/collateral flows are frictionless. Repo haircuts applied in bilateral trading are assumed to be aligned with those applied by the ECB in open market operations, as documented in the eligibility criteria and general framework.[4]

The dealer bank's opening balance sheet is shown in Figure 3, and the opening leverage and capital position is shown in Figure 4.

Figure 3. Opening Balance Sheet of DCESE

Assets	€MM	Liabilities	€MM
Cash	900		
Trading assets	2,820		
Trading assets (Pledged)	13,180		
Reverse Repurchase Agreements	22,200	Repurchase Agreements	22,200
Derivatives Assets	100	Derivatives Liabilities	1,000
		Unsecured Interbank Borrowings (3 mth)	7,550
		Unsecured Borrowings (>6mths <1yr)	5,000
		Unsecured Borrowings (<1yr)	2,000
		Equity	1,450
Total Assets	**39,200**	**Total Liabilities**	**39,200**

Figure 4. Opening Leverage and Risk-Based Capital position of DCESE

	€MM		€MM
Cash	900	Credit Risk RWA	2,748
Trading assets	2,820	*of which*	
Trading assets (Pledged)	13,180	*Derivatives*	*2,500*
Reverse Repurchase Agreements	22,200	*Repo*	*248*
Repo Exposure	1,188	CVA Risk RWA	3,000
Derivative Exposure	2,100	Market Risk RWA	5,000
		Operational Risk RWA	1,100
Total Leverage Exposure	**42,388**	**Total RWA**	**11,848**
Leverage Ratio	**3.4%**	**Common Equity Tier 1 Ratio**	**12.2%**

[4] Guideline (EU) 2015/510 of the ECB of 19 December 2014 on the implementation of the Eurosystem monetary policy framework (ECB/2014/60), OJ L 91, 2.4.2015, p.3

Bilateral Repo Trading Relationships

DCESE trades repo bilaterally with a number of counterparties, including broker-dealers, banks, insurance companies, asset managers, pension funds and hedge funds, as illustrated in Figure 5.

The counterparties can be cash takers, cash providers, or a combination of both. In Table 1, we highlight some of the counterparty and portfolio characteristics.

The bilateral repo trade portfolio is summarized as follows:

- **500 trades (250 repo; 250 reverse repo) of €100 MM Notional**
- **General Collateral and Special Repo, with terms ranging from overnight to 3 months**
- **Repo collateral consists of a mix of Euro-denominated sovereign bonds, covered bonds, corporate bonds and bank bonds, and includes 125 unique ISINs.**

Figure 5. DCESE bilateral repo trading relationships

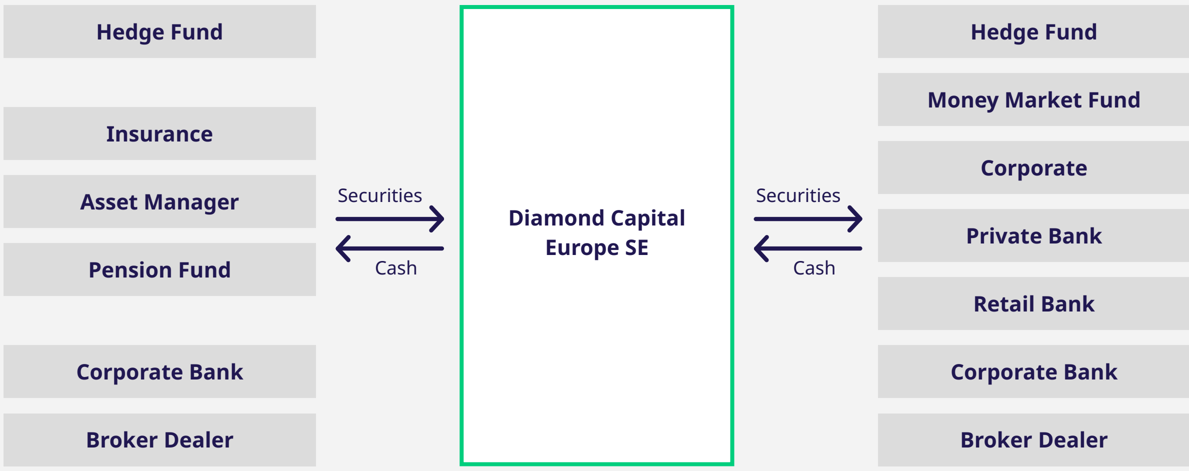
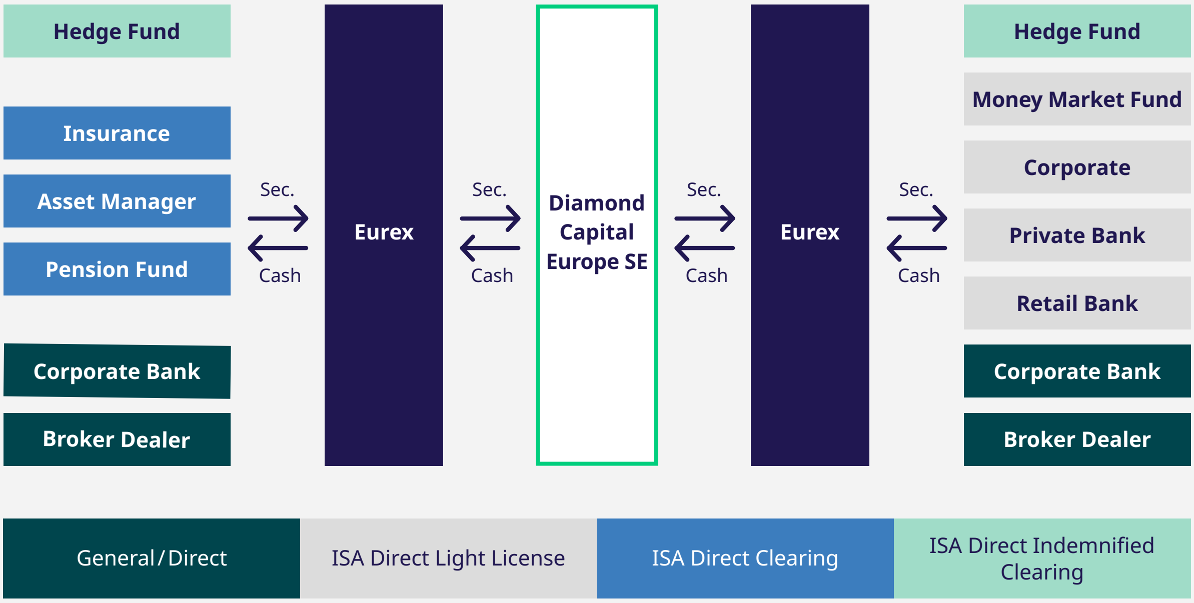


Table 1. Bilateral repo trading relationships

	Rating	Cash borrowed (€MM)	Cash lent (€MM)	Net Position	Exposure (€MM)	Risk Weight (%)	RWA (€MM)
Sell-side							
Broker Dealer	A–	3,200	3,400	Flat/Cash Taker	521	18%	93
Corporate Bank	A+	6,200	1,800	Cash Provider	417	11%	45
Private Bank	A+	4,200	-	Cash Provider	365	11%	39
Retail Bank	AA–	6,200	-	Cash Provider	507	5%	27
Buy-side							
Asset Manager	A	-	5,000	Cash Taker	-	14%	-
Insurance	AA–	-	4,800	Cash Taker	-	6%	-
Pension Fund	AAA	-	4,400	Cash Taker	-	5%	-
Hedge Fund	BB+	1,600	5,600	Cash Taker	-	57%	-
Money Market Fund	AA	1,400	-	Cash Provider	112	5%	5
Corporate	BBB+	2,200	-	Cash Provider	161	24%	39
Total		**25,000**	**25,000**				**248**

Clearing Initiatives

Figure 6. DCESE repo trading and clearing relationships



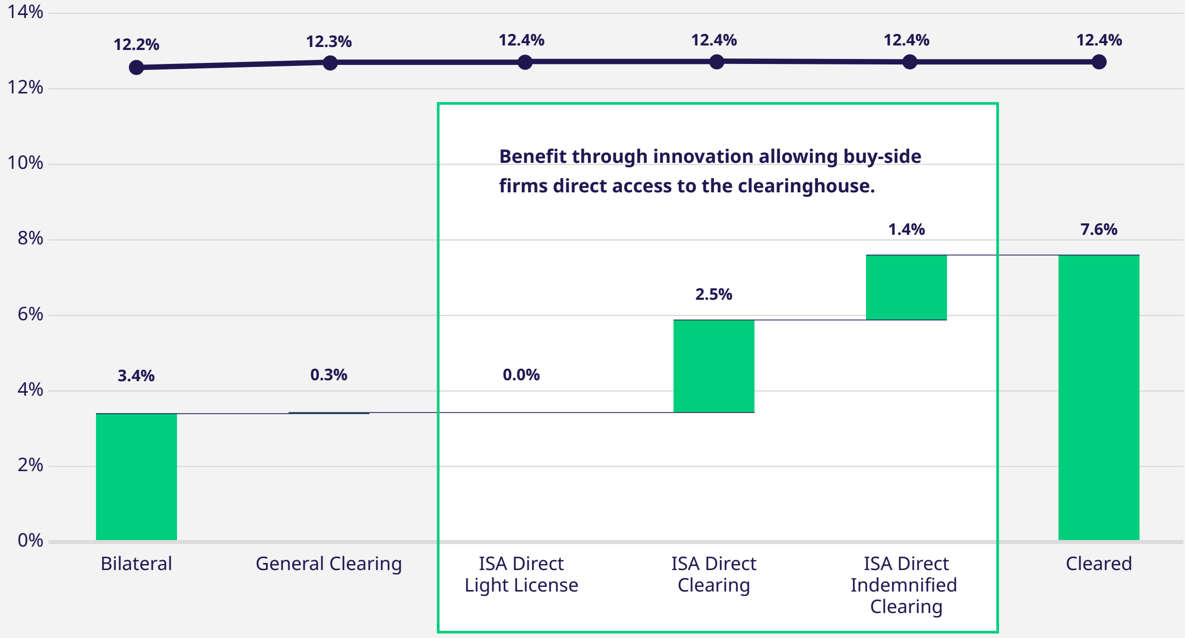
In this case study, DCESE becomes a General Clearing Member and partners with Eurex to introduce clients/counterparties to the appropriate repo clearing models in Figure 2 through a series of initiatives. Bilateral trades are novated to Eurex Clearing and the revisions to the trading relationships and new clearing relationships are illustrated in Figure 6. For example, the Asset Manager, Insurance and Pension Fund clients, all cash takers, are onboarded as ISA Direct Clearing Members.

For simplicity, CCP initial margin requirements are assumed to be aligned with repo haircuts applied in bilateral trading. When the trades novate, there is no net increase/decrease in the type or volume of securities posted to support the underlying repo trades and/or initial margin requirements. There would not be a material impact on the results if CCP initial margin was slightly greater than bilateral haircuts. CCP initial margin requirements for DCESE's prevailing portfolio are assumed to be determined on a net basis by the CCP.

Through the sequential execution of the repo clearing initiatives, DCESE achieves significant multilateral netting benefits, reducing balance sheet assets from €39 Bn to €17 Bn. As a result, there are substantial improvements in the Leverage Ratio from 3.4 % to 7.6 %, as illustrated in Figure 7, with the main beneficial impact coming from the adoption of ISA Direct Clearing Membership by buy-side clients (Asset Manager, Insurance, Pension Fund) and ISA Direct Indemnified Clearing (Hedge Fund). The Common Equity Tier 1 ratio position is also marginally improved from the netting benefits and the beneficial risk weights from facing the CCP.

DCESE has additional obligations regarding the default fund contributions for the house legs of its repo trading and for the buy-side counter-parties for which it acts as the clearing agent. Also, DCESE provides an indemnity to the CCP for the Hedge Fund counterparty. The default fund and indemnity obligations do not materially impact the Leverage Ratio and the Common Equity Tier 1 ratio position.

Figure 7. Leverage Ratio (bars) and Common Equity Tier 1 Ratio (line)



Summary findings and conclusions

Bilateral repo trading portfolios are relatively low-risk in normal market conditions due to their short-term, over-collateralized nature.

Notwithstanding, bilateral repo trading portfolios have comparatively high leverage-based capital requirements due to their treatment on a gross basis.

The recent innovation in the clearing landscape for repo market transactions offers opportunities for optimizing scarce balance sheet capacity. Eurex Clearing's repo clearing models now offer direct access to clearing for sell-side and buy-side firms, including options for firms with lower credit standing.

In this case study, a number of initiatives based on Eurex Clearing's repo clearing access models have been applied to a dealer bank's repo trading portfolio, including:

- **General/Direct Clearing**
- **ISA Direct Light License**
- **ISA Direct Clearing**
- **ISA Direct Indemnified Clearing**

The study has shown that under certain simplifying assumptions, the application of Eurex Clearing's repo clearing access models can be used to achieve comprehensive multilateral netting, such that the underlying repo transactions consume no balance sheet, except for the associated bond inventory. Note that in reality, a repo trading portfolio will include a level of maturity transformation such that complete multilateral netting cannot be fully achieved, and some balance sheet will be utilized.

Eurex Clearing's repo clearing access models offer banking institutions the opportunity to maintain the repo trading service offering to their buy-side clients without the disproportionately high leverage capital costs and depressed returns on equity.

Buy-side firms benefit from improved access to funding and a large liquidity pool through Eurex Repo. Operational efficiencies can also be realized through settlement netting and reduced documentation compared to bilateral trading. Buy-side firms also benefit from better protection of assets and improved portability in a default scenario.

The demonstrated stability of cleared European repo markets will further support central bank financial stability and monetary policy transmission objectives.

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Contact us

Eurex Repo
Repo.Sales@eurex.com

Published by
Eurex Repo GmbH
Mergenthalerallee 61
65760 Eschborn
Germany

www.eurex.com

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