SIX x-clear, the central counterparty

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK

By Robert Oleschak[1]

When a trade is concluded on a trading platform, a central counterparty acts as intermediary between the trading partners. In so doing, it takes on the obligations incurred by the trading partners and guarantees the fulfilment of the obligations. In addition, a central counterparty keeps account of, valuates and offsets the trading positions. On the settlement date, it initiates the settlement of the delivery and payment obligations. SIX x-clear Ltd (hereinafter x-clear) takes on these duties for shares and exchange traded funds (ETFs) traded on SIX Swiss Exchange and on the London Stock Exchange (LSE).

x-clear has 75 members. In 2008, it concluded around 100,000 transactions per day, equivalent to about CHF 3.3 billion. It plays a central role in the running of the Swiss financial centre and is a key element in the Swiss Value Chain. The Swiss Value Chain is the term used to describe the fully electronic integration of the trade, clearing and settlement of shares, bonds, derivatives and structured products in Switzerland.[2]

This article aims to familiarise a wider audience with the way x-clear works. The first section is devoted to matters of governance as well as to the legal provisions. The second section outlines the services x-clear provides. The last section describes the risks taken on by x-clear between the trade and settlement dates, as well as the way in which its risk management works.

1 Governance and legal provisions

x-clear belongs to SIX Group Ltd (Swiss Infrastructure and Exchange), which was created out of the merger of three infrastructure companies, SWX Group, SIS Group and Telekurs Group, at the beginning of 2008. The shareholders in SIX Group are the Swiss big banks (30.12%), foreign banks in Switzerland (22.68%), commercial and asset management banks (14.96%), cantonal banks (13.64%), private bankers (10.17%) and regional and Raffeisen banks (4.09%). Other banks account for 1.23%. SIX Group and its companies hold the remaining 3.11%.

Banks and securities dealers from Switzerland and abroad that are subject to adequate regulation and supervision may become members of x-clear. In addition, they must fulfil certain technical and operational requirements. There are two types of membership in x-clear. Members either belong to the Individual Clearing Member (ICM) or the General Clearing Member (GCM) category. An ICM may only settle its own transactions via x-clear, whereas a GCM can also settle transactions for other stock exchange participants who are not members of x-clear (Non-Clearing Members, NCMs). At the end of 2008, x-clear had 75 members (13 GCMs and 62 ICMs) as well as 50 NCMs.

x-clear is a bank supervised by the Swiss Financial Market Supervisory Authority (FINMA) and qualifies as a recognised overseas clearing house (ROCH) in the UK by the Financial Services Authority. In addition, because the Swiss National Bank (SNB) considers x-clear to be important for the stability of the Swiss financial system, it is subject to SNB oversight.[3] These authorities coordinate their supervisory and oversight activities based on a memorandum of understanding.

In 2006, x-clear signed the European Code of Conduct for Clearing and Settlement. In this self-regulatory agreement, European trading platforms, central counterparties, central securities depositories and settlement institutions agree to grant one another reciprocal access to their services and create transparency with regard to their terms and conditions. The objective is to facilitate effective competition with regard to the trade, clearing and settlement of shares. At present, the code of conduct is limited to shares, but an extension to other financial instruments is envisioned.

2 Role and benefits

x-clear acts as central counterparty for its members who are registered with the SIX Swiss Exchange and LSE trading platforms. Its area of business is limited to Swiss, British and other foreign shares as well as ETFs. Under certain circumstances, x-clear also acts as central counterparty for transactions on SIX Swiss Exchange which are concluded outside the central order book (off-order-book trades).

From the point of view of its members, x-clear makes risk management easier, eliminates counterparty risk, assures anonymity of trading partners and contributes to efficient trade settlement. These aspects are described in greater detail below.

1 The author would like to thank Philipp Haene, Andy Sturm and David Maurer for their helpful comments.
2 cf. P. Haene and A. Sturm (2009), Behind the scenes of financial markets: A look at the Swiss financial market infrastructure. Available at www.snb.ch.
3 Oversight of financial market infrastructures is an instrument for furthering financial stability. For a description of system oversight, cf. Swiss National Bank (2007), The Swiss National Bank 1907–2007, pp. 409 et seq. and A. Sturm (2009), Oversight of payment and securities settlement systems by the Swiss National Bank. Available at www.snb.ch.

Simplification of risk management and elimination of counterparty risk

If two trading partners use a trading platform without a central counterparty and agree on the conditions of a trade (e.g. number of units, price and settlement date), they enter into a contractual relationship with each other. In the interval between the trade and settlement dates (for share transactions, usually three working days), the trading partners bear the risk that the counterparty might fail to meet its obligations.

If a transaction is concluded on a trading platform with a central counterparty (in this case, x-clear), the central counterparty acts as intermediary between the two parties and enters into a contractual relationship with each of them. In so doing, x-clear becomes the buyer to the seller and seller to the buyer. Thus, the two trading partners do not have any obligations towards each other, instead each of them enters into a contract with x-clear. This is referred to as an open offer (cf. figure 1 below).

x-clear guarantees that the delivery and payment obligations it takes on from both parties will be fulfilled. It does not, however, guarantee that the obligations will be fulfilled on time. x-clear bears the risk arising from the possibility that a trading partner might default between the trade and settlement dates and fail to meet its obligations (counterparty risk). Risk assumption by x-clear eases risk management for the trading partners, since all trades involve the same central counterparty, which the trading partners know in advance and which also guarantees that the claims will be met.

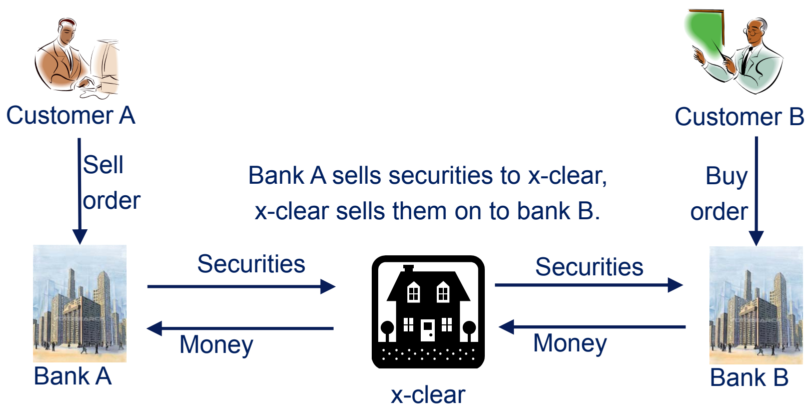
Anonymity of trading partners

The SIX Swiss Exchange and LSE electronic trading platforms enable their members to remain anonymous before the conclusion of a trade (pre-trade anonymity). However, without a central counterparty, trading partners would have to reveal their identity after conclusion of a transaction, at the latest. Since x-clear acts as intermediary between two trading partners, it ensures the anonymity of the parties even after conclusion of a trade (post-trade anonymity). This is an advantage for the trading partners because they can keep their trading activities concealed and thus avoid market distortions.

More efficient settlement

By concentrating all transactions at x-clear, it is possible to net transactions on a multilateral basis and reduce the number of delivery and payment instructions (and thus the costs of settlement) to a significant extent. Optional netting is carried out per ISIN (International Securities Identification Number). This means that if a member carries out various transactions (some of which may even be mutual obligations) on the same day using a financial instrument with the same ISIN, only one delivery and payment instruction will be necessary in each case as a result of netting per ISIN.

Figure 1: How a central counterparty works



3 Risk management

When shares are purchased or sold, the interval between the conclusion of the trade and the date on which the delivery and payment obligations have to be met is three days. In this period, a trading partner may default or fail to meet its obligations on the settlement date for other reasons. x-clear takes on the resulting counterparty risk. In addition to counterparty risk, a central counterparty is also exposed to liquidity, operational and legal risks. The individual risks as well as the instruments and procedures used by x-clear to reduce or eliminate them are described below.

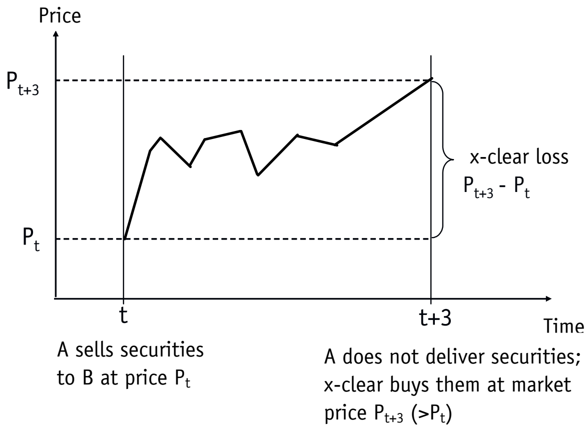
Counterparty risk

Counterparty risk is the risk that a trading partner might fail to meet its obligations after the conclusion of a trade involving financial instruments. This risk generally involves two components, namely the principal and replacement cost risks.

Principal risk refers to the risk that one counterparty might meet its obligations, while the other counterparty might not settle its obligations, either when due or any time thereafter. However, a delivery-versus-payment mechanism for the settlement of transactions can eliminate principal risk entirely. This mechanism ensures that a payment is only triggered when securities are transferred, and vice versa. Since x-clear uses securities settlement systems that work with such a mechanism for all transactions (SIX SIS, Euroclear UK & Ireland and Euroclear Bank), there is no principal risk for x-clear or its members.[4]

Despite the elimination of principal risk, x-clear still bears a replacement cost risk if a member does not meet its delivery or payment obligations. Replacement cost risk or sales risk refers to the risk that market conditions might have changed in a way that the financial instrument can now only be obtained at a higher price or has to be sold at a lower price. Since x-clear guarantees the fulfilment of the delivery and payment obligations (and, if a trading partner defaults, has to obtain financial instruments on the market or buy them from the remaining trading partner at the agreed price), it is exposed to this risk (cf. figure 2).

Figure 2: Replacement cost risk for x-clear



At time t, bank A sells securities to bank B at price P_t. When a trade is concluded, x-clear acts as intermediary between the trading partners. On the settlement date (i.e. three days later = t+3), bank A does not deliver the securities. In this situation, x-clear is obliged to obtain the securities for bank B on the market and deliver them at the agreed price P_t. Since the price of the securities has increased to P_{t+3}, x-clear suffers a loss per item of P_{t+3}-P_t.

4 For a description of SECOM, the securities settlement system operated by SIX SIS Ltd, cf. P. Haene (2009), SECOM, the securities settlement system. Available at www.snb.ch.

If a large trading partner defaults or fails to meet its contractual obligations, this could mean considerable financial losses for x-clear, especially if stock markets are very volatile. In addition, the two occurrences usually correlate (positively) with each other. This means that the default of a trading partner may intensify the volatility of stock markets, and vice versa. x-clear's risk management aims to be in possession of sufficient financial resources to cover the loss that would occur under extreme but plausible market conditions if the largest and/or second largest trading partner were to default. It achieves this by imposing margin requirements on trading partners and creating a default fund with member contributions. Margin requirements are based on the current trading positions of the trading partners, while the contribution to the default fund depends on the membership category and the average risk exposure of the party in question. If the default of a member causes a loss, margins and default fund contributions of that member are generally used first to cover the loss. Only when these resources have been exhausted, does x-clear resort to default fund contributions of other members. Thus, the cost-by-cause principle takes effect first, and only afterwards does the insurance principle come into force. The most important aspects of x-clear's risk management are explained in more detail in the box below.

x-clear's risk management

The margins that x-clear demands from its members are calculated on the basis of their trading positions in SIX Swiss Exchange and LSE. x-clear aims to set the margins high enough to be able to cover in 99% of cases the loss incurred in the event of a member defaulting. Compliance with this requirement is tested in retrospect using a process referred to as backtesting. The margins comprise initial margins and variation margins:

- Initial margins are calculated on the basis of the net position per security and its volatility (using a historical value-at-risk model). Opposing positions between different securities are partially offset against each other and lead to a reduction in the initial margins. Finally, the initial margins calculated in this manner are multiplied, using a risk coefficient which takes the member's rating and any large one-sided net positions into account. Initial margins are recalculated immediately after each purchase or sale made by the respective member.
- Variation margins cover the price movements of securities between the trade and settlement dates and are usually calculated on an hourly basis. Members must cover their margin requirements by depositing collateral (money or securities). In the event of a shortfall, x-clear automatically triggers a margin call, which must be met in the form of money within 60 minutes.

In addition, x-clear has established a default fund, which should – in combination with the other financial resources – cover the loss that would occur under extreme but plausible market conditions if the largest and/or second largest member were to default. Compliance with this requirement is also tested on a regular basis using stress tests. Separate default funds have been established for SIX Swiss Exchange and LSE. The contribution calculated for each member depends on the average sum of open positions over the past three months as well as the membership category (ICM or GCM).

If x-clear suffers a loss due to the default of a member, the margins that the defaulting member deposited based on its trading position in the affected stock exchange are used first to cover the loss. Then its contributions to the default fund are deployed. After that, x-clear uses part of its available provisions, followed by additional resources from the default fund (i.e. the contributions of other members). In a further step, the remaining members are obliged to top up the default fund. The last resources to be used are the remaining provisions, the capital stock and the reserves of x-clear.

Liquidity risk

Liquidity risk consists of the risk that a member might not meet its delivery or payment obligations in time. x-clear is not exposed to this risk, since it does not guarantee a timely delivery or payment. Consequently, liquidity risk remains with the members.

To reduce liquidity risk for its members, x-clear uses procedures and instruments which facilitate timely settlement. If a delivery is delayed, x-clear tries to obtain the securities by means of securities lending at the expense of the non-delivering member. x-clear may also remind or suspend the member in arrears. If the member does not fulfil its obligations even after a short extension, it may be excluded from trade and its positions closed out.

Operational and legal risks

A central counterparty must also consider operational and legal risks. Operational risk, such as the inadequacy or failure of internal procedures, people and systems, as well as the influence of external events, may impair the availability, confidentiality and integrity of data. This could also affect the ability of x-clear to oversee and monitor its counterparty risk. x-clear has implemented various measures to minimise operational risk.

Legal risk consists of the risk that x-clear's contractual provisions might not be enforceable and that x-clear may therefore not be able to protect its ownership rights or other interests. Special mention should be made of the risk that, in the event of a member defaulting, x clear might not be able to use the deposited collateral (margins and default fund contributions), or might not be able to do so in time. Other legal risks may be involved in a cross-border context, since different jurisdictions may apply. For an overview of the legal aspects of clearing, please refer to Hess (2004).[5]

5 M. Hess, (2004), Die Zentrale Gegenpartei im Effektenhandel – Rechtliche Aspekte des Clearing, in: Aktuelle Juristische Praxis, 6/2004, pp. 687 et seq.

4 Summary

x-clear acts as central counterparty for its members who are registered with the SIX Swiss Exchange and LSE trading platforms. At the time of conclusion of a trade on one of these trading platforms, x-clear takes on the delivery and payment obligations of its members, thereby pooling all the counterparty risks. To be able to meet its obligations in the event of a member defaulting, x clear must be in possession of sufficient financial resources. x-clear's risk management ensures that the financial cushion is adequate to cover the failure of the largest and/or second largest trading partner under extreme but plausible market conditions. In its role as central counterparty, x-clear eases its members' risk management, ensures their anonymity, even after the conclusion of a trade, and contributes to the efficient settlement of delivery and payment instructions.

Published by
Swiss National Bank
Oversight
CH-3003 Berne
Telephone +41 31 327 02 11

Publication Date
January 2009

Further information
oversight@snb.ch