White Paper

Pre-Validation & Risk Management

PERCIVAL

PRE-VALIDATION & SECURITIES LENDING

SECURITIES LENDING

Generally, securities lending is a regulated activity. Securities lending and short selling are not allowed in most African and Middle Eastern markets. Markets with specialised local practices such as Islamic finance in the Middle East and North Africa present a unique challenge; alongside compliance with legal requirements, they are often regulated by parliamentary decree.

Many such markets do not have the flexibility to adopt global standards such as netting of securities and cash, Central Counterparty Clearing (CCP), nominee accounts or securities lending, unless one creates a special zone and jurisdiction like the DFSA in Dubai, which regulates the DIFX/NASDAQ in Dubai. In order to prevent settlement risk in these markets, a pre-validation mechanism is used to ensure the availability of the security and to prevent short selling. To achieve this end, sell orders are checked against the availability of the securities in the seller's account prior to trade execution. This mechanism, in theory, should eliminate settlement risk and prevent failed trades; zhowever, for custodian trades, a confirmation is required before settlement. If the trades are rejected by the custodians, then settlement obligations are transferred to the brokers who may not have enough securities for settlement.

According to the Thomas Murray organisation, Qatar recently allowed securities lending, but only as a means to prevent settlement failures. Similarly, in Mauritius, the securities lending programme is used only for failed settlements. In other markets (like Bolivia, Costa Rica, Venezuela, Bulgaria, Estonia, Iceland or the Slovak Republic), even though permitted, securities lending is not or little practised. One of the reasons may be the lack of automated procedures necessary to achieve timely settlement of securities lending transactions, which often need to settle on a shorter cycle when compared to regular trades.

WHAT IS PRE-VALIDATION?

Pre-validation is a settlement risk mitigation measure that involves the blocking or earmarking of a seller's securities on or shortly after the trade has taken place until settlement takes place.

Typically, pre-validation works as follows:

- Every order submitted by a trading member into the trading system must contain details of the CSD account from which the securities will be delivered (for a sell order) or into which they will be received (for a buy order)

- For both sell and buy orders, the CSD account number is validated to ensure that it exists and is not blocked or closed or has some status or indicator that prevents settlement from taking place using the assets recorded in it

- Additionally, for sell orders, the relevant securities that are needed to meet the delivery obligations of any trade that might arise from the order are blocked

- If the client account is invalid for some reason, or if the seller's account does not have enough balance (headroom) to allow the quantity of securities indicated in the order to be blocked, then the order entry is rejected and a suitable error message reported to the trading member or broker

- It should be noted that if orders are modified or cancelled in such a way as to affect the quantity of securities, then additional securities may be blocked or blocked securities may be released in respect of that change

What Is Headroom?

Headroom is the term used to refer to the quantity of securities available for trade in an account at any point in time. Pre-validation of sellers' orders works in respect of the headroom which decreases accordingly as sell orders are pre-validated and accepted into the trading system for processing and matching. For example, Investor A has a holding of 1000 securities and he sells 800. Subject to the treatment of unsettled securities described below, the CSD will block 800 securities leaving a remaining headroom of 200.

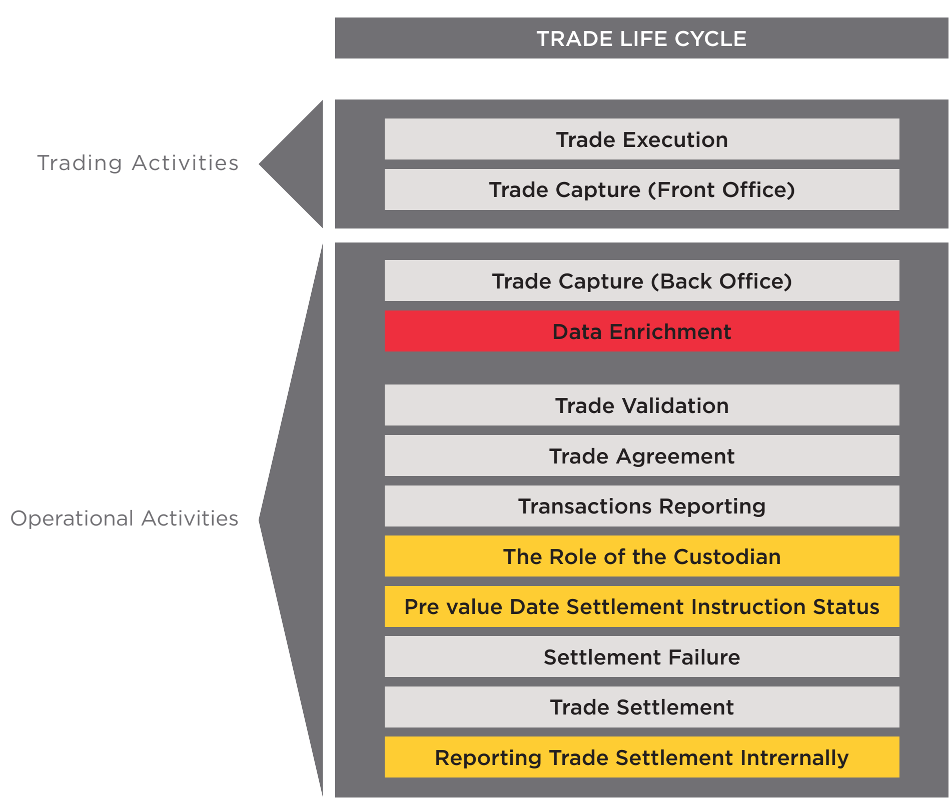
Headroom can be determined in different ways in different environments. The main differences in approach revolve around whether or not securities from unsettled purchase instructions in the CSD are taken into consideration in calculating headroom.

If unsettled purchases are not taken into account, it means that it will not be possible for investors to buy and sell the same securities within the same day. It will be necessary to wait until settlement occurs, typically 2 or 3 days later, before those securities can be sold.

TRADE ENRICHMENT

Following trade capture within the settlement system, the details of a trade require enrichment. Whether by manual or automated means, trade enrichment involves the selection, calculation and attachment to a trade of relevant information necessary to complete a number of essential actions, following capture of the basic trade details.

In some cases, the trading system in use at the stock exchange collects enough information with the order so that all the necessary data is present and no further enrichment of the data. In other markets, trade information coming from the trading platform is minimal and trading members must enrich the trades in the settlement system after trade and before settlement; this is normally carried out by the back office in a separate process.



WHAT IS COUPLING?

Coupling is a term used to refer to the level and timing of pre-validation checks that are carried out. It should be understood that the word “coupling” here refers to the coupling of the trading system and the settlement system or CSD. There are three basic levels of coupling: tight, loose, and uncoupled.

Tight Coupling

Tight coupling refers to the pre-validation approach described above where the checks are carried out during order entry or modification. Sellers’ securities are locked from order entry and remain locked right through trade report to final settlement.

Loose Coupling

With loosely coupled systems, no checks are carried out on order entry; instead, they are carried out after the trade is reported; specifically, when the enrichment details or allocations of the trade to the settlement accounts takes place. In some cases, trade enrichment is a back-office obligation that trading members have a regulated time to deal with; in some markets, this must be completed by close of business on trade day; in others, participants have until an hour or so before the last settlement on the settlement day.
The difference between tightly and loosely coupled systems can have a fundamental impact on the process, but it is still only a difference of the timing of when the pre-validation checks are carried out.

Uncoupled Systems

In uncoupled systems, no headroom checks are carried out, and subsequently, no securities are blocked in advance of settlement. Clearly, trade enrichment details must still be entered before settlement can take place and for this, a valid client account in the CSD must be supplied for both receiving and delivery sides of the transaction.

PRE-VALIDATION IS SKEWED IN FAVOUR OF BUYERS

DvP is a simple concept: the simultaneous, final and irrevocable exchange of cash for securities.
Built into this concept, and one of the major philosophical planks of capital markets generally is fair and equal treatment of both parties to a transaction: the buyer and the seller.
Pre-validation is inherently unfair because it locks the seller's security assets often for several days while the buyer is left with the quiet and potentially lucrative enjoyment of his cash over the same period.
This may seem like splitting hairs when we look at small-value transactions; after all, what can you possibly do with a few thousand dollars of cash for three days?
However, there are many transactions for much more substantial sums of money: the sort of sums on which we can easily see that at the very least, we might be able to earn overnight interest. Larger sums may be seen if we start to consolidate several transactions over a period.
In short, it is right that we seek to make things transparent and fair for the investor irrespective of which side of the transaction he participates in.

MARKET RISK

There are a number of organisations that continually and actively assess the risk in markets around the world and publish or sell their findings as a service to companies involved in investment like custodians, fund managers, brokerage firms, and so on.
One of the key areas that influences the risk in a market is asset commitment times; in other words: the length of time that assets are locked for the purposes of settlement.
The markets with the lowest risk indicators have very short asset commitment times of a few minutes or seconds in some cases.
In looking at asset commitment times, securities and cash are considered, so markets that use pre-validation automatically have a high risk rating because securities are locked for two or three days before settlement.

OPERATIONAL RISK

In the case of tightly-coupled markets, where orders are validated against the CSD before being admitted to the trading engine for matching and processing, there is an additional operational dimension to the risk.
As each order entry or amendment must be validated against the CSD, it follows that it is not possible to trade if the link between the trading system and the CSD fails for any reason at all.
Typical reasons for failure can go beyond failure of the CSD system itself and be triggered by failure in the communication links between the systems or simply a severe degradation in performance can have a direct knock-on effect on trading.
In brief, tightly coupling a CSD to a trading platform requires that the CSD can perform at the same level of throughput of the trading system, and the link then becomes a major bottleneck restricting growth of trading volumes. In smaller markets this is of no consequence, but in larger markets where there are millions of CSD accounts and many tens of thousands of transactions per second, this is not a trivial issue.

RESTRICTS MARKET GROWTH

Having pre-validation restricts the development of the market in terms of the kinds of products and services that it can provide.

DEPEND SOLUTION FOR SETTLEMENT

The principal purpose of a depository is to handle the accounting and processing required for the settlement of securities' transactions.
DEPEND supports complex configurations that encompass: DvP settlement using any of the settlement models, bilateral or multilateral netting, a full range of pre-validation links through an open API, multiple trading venues, multiple liquidity pools, multiple settlement currencies, a range of features for participants to manage their settlement pipeline, support for the integrated cash model, and direct integration with the settlement bank.
Irrespective of all other factors, it is not possible to commit the same securities to two operations simultaneously as DEPEND maintains full financial integrity over positions.

ALTERNATIVE MEASURES TO PRE-VALIDATION

Central Counterparty (CCP)

A CCP acts as the legal counterparty to every trade.
As an organisation, its aim is to manage the risk in the market. This is done through the automatic management of trading members' collateral.
Having a CCP in a market requires that all dealing members are also members of the CCP; the trading platform as well as the CSD are therefore closely integrated with the CCP.
Trades are no longer reported from the trading system directly to the CSD; instead, the CCP will aggregate and consolidate the reported trades and prepare a solution for onward transmission to the CSD for settlement, and in addition, it will respond to the CCP's orders to move and manage members' collateral.
It is not unusual to find that the actual volume of transactions being reported through the CCP to the CSD for settlement is significantly reduced, often by a factor of as much as 10 or more. In other words, in a market where a million trades are executed, a CCP is likely to consolidate this into a solution of 100,000 instructions.
It should be noted that implementing a CCP in a market is expensive. Not only are solutions costly, a CCP is more than simply a system; it is a complete and integrated risk management and regulatory infrastructure that requires significant effort to implement and operate.
Fortunately, international recommendations predicate the implementation of a CCP only in the case of OTC traded derivatives. This means that it is not needed for handling the normal spot market transactions.

Settlement Guarantee Fund

A Settlement Guarantee Fund can provide an adequate cushion for risk in most cases. It operates like an insurance scheme where members contribute to the fund. In the event of a trading member failing to meet settlement obligations, the fund is utilised to the extent required for successful completion of the settlement. This has eliminated counterparty risk of trading on the Exchange. As a consequence, credit risk no longer poses any threat in the market place. The market has full confidence that settlement shall take place in time and shall be completed irrespective of default by isolated trading members.

Guarantee Fund Waterfall

If a Clearing Member defaults, the CSD will have access to the financial resources in the following order of priority:

- Collateral lodged by the defaulting Clearing Member to secure margin requirements until the defaulted amount is extinguished
- The contribution to the Guarantee Fund by the defaulting Clearing Member until the defaulted amount is extinguished
- The contribution to the Guarantee Fund by the CSD until the defaulted amount is extinguished
- The contribution to the Guarantee Fund by other Clearing Members on a pro-rata basis until the defaulted amount is extinguished
- The sale of the securities of the defaulting Clearing Member until the defaulted amount is extinguished
- The assets of CSD, subject to a maximum which leaves the CSD with sufficient capital to continue to operate effectively and maintain its business as a going concern

Procedures For Buy-In & Sell-Out

In many markets, buyers and sellers are able to force the counterparty to settle a trade, providing that the defined procedures (set down by the exchange/market) are followed. This is known as 'buy-in' and 'sell-out'.

Buy-In

A buyer of securities could initiate buy-in procedures; typically, buy-in procedures are allowed to begin only after a minimum period following value date.
To initiate a buy-in, the buyer issues a written communication to the seller stating that unless delivery occurs by a specified date, a buy-in will be actioned. If the seller is unable to deliver the securities by the buy-in deadline date, the buyer will execute the buy-in and will buy the replacement securities in the market place, at the current market price. The purchased securities through the buy-in procedures are delivered to the original buyer. The buyer pays the net settlement value of the original trade; the additional cost of the buy-in purchase is charged to the original seller.

Sell-Out

A seller of securities who is able to deliver the securities to the buyer, but where the buyer is unable to make payment for the purchase, the seller may choose to initiate a sell-out procedure.
A specified number of days after the value date, the seller will issue a written communication to the buyer, stating that unless payment is made by the deadline, sell out procedure will be taken. If the buyer is unable to make payment by the deadline, the seller will sell the securities in the market place at the current market price. The sale proceeds will go to the seller and any shortfall in the sale proceeds between the original sale and the sell-out are borne by the original buyer.

Stock Lending & Borrowing

Investors who own securities can increase the return on their investment by lending securities to those who wish to borrow.
Legal title to the lent securities passes from the lender to the borrower for the period of the loan. In order to secure the lender against the potential non return of the lent assets, the borrower typically provides collateral to the lender in the form of securities or cash. The lender of the securities will receives income from the borrower periodically.
Conversely, if an investor has an obligation to deliver securities (as a result of selling), but have none or an insufficient quantity of securities he may to choose to borrow the necessary securities. Borrowing enables the delivery to be completed and the seller to receive proceeds at the earliest opportunity.

Automatic Lending & Borrowing

Large custodians and fund managers maintain very large securities holdings for their account holders. In these circumstances the account holders can benefit if the custodian offer securities lending and borrowing service. Lenders effectively lend their securities to one or many borrowers, via and agent (Custodian) whose role is to match the needs of lenders and borrowers.

Fail But Fine

Trades that cannot be delivered will be excluded from the settlement process and the brokers involved must borrow the stock or face the standard stock exchange procedures and fines for handling failed deliveries. Examples of these markets and method of fines are as follows:

- Australia
  Brokers due to deliver securities within the Australian Stock Exchange will be fined
  on a daily basis

- UK
  Fines imposed by Crest result from a Crest members' failure to meet predefined settlement
  performance targets relating to the percentage of trades settling on any one day

Percival Software Ltd

288 Bishopsgate, City of London, EC2M 4QP, UK
+44 20 8123 0842
percival@percival.co.uk
www.percival.co.uk