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TOTAL EQUITY RECONCILIATION

A unique method of managing FIFO/Book cost differences on margin trades instruments by Duncan Wheatley, CTO, Watson Wheatley

INTRODUCTION

This paper focuses on a little known technique for accurately reconciling listed and OTC derivatives in fast moving trading environments. The approach is applicable to all instrument classes that are processed on a FIFO (first in first out) basis and include agricultural, energy and metal commodities, CFDs, index or interest rate futures and some options.

Total equity reconciliation aims to account for the different allocations of profit between realised and unrealised which are caused when two systems process the same FIFO trades but in different orders, an inevitable consequence of processing data in disparate systems. It is not the purpose here to discuss the mathematics behind FIFO processing, but to look at the requirements of a reconciliation process to account fully for these differences.

Definition: *The underlying principle of total equity reconciliation is to make the trade posting order irrelevant by adding the unrealised P&L of the account (mark to market) to the realised P&L or cash balance obtained from the trading or portfolio accounting system. It can be thought of simply as a market value reconciliation.*

METHOD

A minimum requirement for reconciling derivatives has to be daily positions and trades. This is perfectly feasible despite the lack of standardisation of data formats and content, and often the issues of instrument identifiers.

Our experience over a number of years shows that, despite these difficulties, match rates on trades can easily exceed 99% with trading volumes in excess of 10,000 trades a day and across a wide range of instrument types. This is good news, since a key building block of total equity reconciliation is the availability of matched (or indeed mismatched) positions, and the all the underlying trade breaks.

Associated with the security positions and trades that have been reconciled is security reference data that determines how total equity reconciliation should be conducted. As a minimum the system needs to know the contract size of the traded security, but also whether a total equity calculation is applicable. Some options behave like futures, so just excluding options because most of them don't is not enough.

Security prices are needed to be able to mark to market the security positions in the account or portfolio. These can usually be obtained from the clearer or from the exchange on a daily basis, but to relate the price to the positions demands that the system recognises this relationship.

We are now into the realms of the relational database, not Excel, and a reconciliation system looking akin to a two sided portfolio accounting or trading system. Quite often prices are quoted differently between different sources or systems and these price multiplication factors have to be normalised. The system now needs to take all the component pieces to mark to market; i.e. to value the portfolio or account in each trading or settlement currency. This is very definitely the realm of a portfolio accounting system, but here we are in a reconciliation system.

The next step is cash reconciliation. It is inevitable that there are a number of trades breaking in the trade and positions reconciliation, and these breaks carry cash as well as a P&L component. Both of these elements are part of total equity so the sum total of the cash breaks needs to be known as part of the equation. Since the trades and positions have already been reconciled, then reconciling the cash on the trades (exchange fees, brokerage etc.) should be relatively straightforward.

There should be no forgetting the cash flows on other transactions that form part of the account or portfolio. All the differences need to be identified.

The final, and most difficult piece of the jigsaw, to fully account for the differences in total equity between the two systems, is to calculate the P&L component where either trades are missing or the reconciliation has isolated trade price differences. The calculation of this is critical to the process; it will not work without it, and it is pure mathematics. This is a unique selling point of iRecs and we therefore cannot publish the formula here.

CONCLUSION

The demands on a system to handle total equity reconciliation are significant. A powerful matching engine with complex workflow is a start, but will only take you half way there. More importantly the system needs to understand securities accounting logic, like a portfolio accounting system, and react appropriately to security definitions, security prices, price multipliers and the relationship between trades and positions, and cash balances and underlying cash flows.

With the right system and with accurate and timely data the substantial business risks associated with high volume and complex derivative trading can be mitigated.

Reconciliation does not solve the risk issue, but it can give you the accurate and timely information to better measure risk and act accordingly.

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