



# Quantax<sup>®</sup> News

## Welcome!

It has been a while since the last Quantax News, as we at COMIT Gruppe have been very busy with development and implementation of a major release of Quantax.

We're proud to present Quantax Professional 4.0, a release fully packed with features. We extended reporting, instruments coverage and interfaces considerably, and added a generic limit system.

See the article commencing on this page for an outline of the changes.

## Quantax at Sibos

Quantax 4.0 will be launched at the **Sibos 2002 Exhibition in Geneva** (30 September – 4 October 2002). COMIT Gruppe will demonstrate Quantax on a Sun Blade 100 Workstation at the SUN Microsystems booth (C090 in Hall 2).



Sibos is one of the world's premier financial services event, attracting the industry's leading figures and firms. Over 6000 delegates are expected.

For more information, see <http://www.swift.com/sibos>.

## Zope receives award

Zope, the Application Server used by Quantax, was awarded the 2002 Linux Journal's *Editors' Choice Award for Best Enterprise Application Server*.

Zope shares the honor of receiving a Linux Journal Editors' Choice Award with companies like IBM, Sun, HP and Sharp.

## Quantax Professional Release 4.0

### Limit System

A very generic and flexible limit subsystem has been added to Quantax. Limits can be defined in any currency and on any level for basically all calculated values, such as 'replacement value on issuer or country level', 'value at risk on a book', 'Month to date loss by asset category', etc.

All limited values will be highlighted automatically in all corresponding reports; *overdrafts* will be exposed by a red background color. A mouse click on such a highlighted value will reveal the limit and exposure details.

A set of limit reports is provided, as well as direct links to the limit management subsystem for authorized users.

### Reporting

Reporting has been enhanced considerably, providing an easy structure for dimensional analysis (referred to as OLAP, "Hyper-Cubes" or "Pivot Tables" by the industry).

#### General Analysis Report Writing

A new function 'Save as Report' allows the user to save the last query executed as a standard Quantax report. It allows the user to define custom reports using (almost) all standard position menu functions.

#### Position Report Edit Function

The new release allows editing of all reports.

While editing, the underlying portfolio can be changed by accepting the currently active portfolio (unlick 'use saved PF'), or the saved PF can be preserved.

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Risk Advice Services

### Extended Analysis Reports (Pivot Tables)

The *PFV*, *P/L* and *Risk Analysis Reports* have been significantly extended. The *Pivot Table* has been generalized, such that the user can now analyze positions in matrices of up to 3 vertical and 3 horizontal dimensions simultaneously, with row and column totals individually enabled or disabled.

### Risk Analysis enhanced

The Risk Analysis function has been enhanced:

- Individual risk factor filters: The option to filter by individual risk factors, instead of by currency as in earlier versions.
- Historic time series analysis: Historic valuation results (from P&L history) can be optionally included in the analysis, hence allowing the analysis of arbitrary time series.

Delta Exposure by Product Mon, 09 Sep 2002 17:26:26 GMT+2										
rf	product	comm	commfut	commopt	composite	eqopt	equity	total		
	dateterm	delta pos	delta pos	delta pos	delta pos	delta pos	delta pos	delta pos	delta pos	delta pos
ABB_N.SE	11-Oct-2002 1m	0	0	0	0	0	12,150	12,150		
ABB_N.SE	11-Nov-2002 2m	0	0	0	0	-10,132	0	-10,132		
ABB_N.SE	11-Dec-2002 3m	0	0	0	0	-3,084	0	-3,084		
AXP.SE	11-Oct-2002 1m	0	0	0	0	0	59,993	59,993		
CRUDEOIL.C	11-Oct-2002 1m	0	990,457	0	0	0	0	990,457		
CS_GROUP_N.SE	11-Oct-2002 1m	0	0	0	0	0	50,498	50,498		
DIS.SE	11-Oct-2002 1m	0	0	0	0	0	30,997	30,997		
HEATINGOIL.C	11-Oct-2002 1m	1,500	0	0	0	0	0	1,500		
HEATINGOIL.C	11-Nov-2002 2m	0	0	0	0	0	0	0		
IBM.SE	11-Oct-2002 1m	0	0	0	100	-4,942	23,197	18,355		
IBM.SE	11-Nov-2002 2m	0	0	0	0	-14,208	0	-14,208		
IBM.SE	11-Mar-2003 6m	0	0	0	-59	0	0	-59		
IBM.SE	11-Sep-2003 1y	0	0	0	-26	0	0	-26		
SERONO_B.SE	11-Oct-2002 1m	0	0	0	0	0	1,720	1,720		
SPX.SE	11-Oct-2002 1m	0	5,002	0	0	0	0	5,002		

- Delta-equivalent positions: The delta position is the theoretical position of the underlying instrument based on the current delta sensitivity. Delta positions for 'ccy.R' risk factors represent cash flow series reproducing the current interest sensitivity ladder ('Zinsbindung').

### Extended Position Reports

The *Position Reports (FX Position, Non-Cash (Commodities) Position, Cash Flow Position, Accrued Interest*

*Position)* have been significantly extended:

- The user can now flexibly select a wide variety of grouping and sorting criteria, as well as the set and sequence of position value items to be displayed. Among others, sorting and grouping by issuer, rating, country, valor number etc. are supported.
- The drill down capability enables the user to retrieve all transactions behind a row by a mouse click.
- The current market rate (spot or forward rate based on a given rate scenario) can now be included in position reports.

### Extended Option Position Overview

The option position overview has been extended. In addition to the start date the user can now select an end date as upper expiry limit. All non-expired options with expiry dates  $t$ , where end of month prior to start date  $< t \leq$  end of month of end date, will be considered.

The layout has been changed such that all days of all months where there is an option position will be displayed. Weekends and holiday dates are marked in red color, and for each holiday date the list of currencies for which the date is a holiday is shown as well.

### New Risk Simulation Tool: Rate Fixing Sensitivity Impact

A new function 'Fixing Impact' allows the user to simulate future rate fixing impacts on interest rate sensitivity (interest rate delta, PVBP-change). The user can choose the portfolio and date range where fixings should be performed. Quantax calculates the rate fixing impact on sensitivity by automatically fixing all relevant transactions with the implied forward rates. A detailed report about sensitivity change and applied fixings is provided. The user can drill down to the individual transaction.

## Instruments

The instrument coverage has been extended to all major instruments.

### *Bond Options and Futures*

Bond options (OTC and traded) are released as a new instrument. Cash and physical exercises are supported.

Bond futures are released as a new instrument. It requires the specification of the underlying bond, which can be a real bond (usually the cheapest to deliver issue) or a notional bond. Variation margining is supported based on the underlying bond.

Valuation is based on the price given in a rate scenario, or, if such a price is missing, theoretical valuation based on current yield curves and underlying bond valuation.

### *Risk Strip Engine / FX Currency Splits and 'Good Pairs'*

A new generic risk stripping engine allows to decompose transactions into component risk factors based on a set of rule classes defined by asset type.

There is currently one rule defined for FXCash asset types, which will decompose any cross currency risk factor (e.g., AUD-CHF) into component risk factors based on a split currency and a split rate entered in the deal capture form (e.g., AUD-USD and USD-CHF).

In addition, the resulting currency pair(s) will automatically be normalized to the corresponding "good" currency pair (e.g., AUD-USD and not USD-AUD).

If risk stripping is turned on and no split currency is specified in deal capture, the original currency pair will not be split, but the normalization to the corresponding good pair will still occur.

### *Gamma exposure for linear interest rate instruments*

Interest rate gamma values are now also calculated and reported for all lin-

ear interest instruments; e.g., loans, bonds, IRS.

### *Interest Rate Swaps (IRS) extended*

The IRS transaction type has been substantially extended to allow new types of interest rate swaps. The new version supports all variations of:

- fixed / fixed, fixed / float, float / float, float / fixed swaps
- with optional exchange of principal
- with optional rate compounding
- legs with different currencies

This extension enables full support of swap types:

- IRS
- CIRS (cross currency swaps)
- Basis Swaps
- OIS / TOIS (Overnight, TOM/Next index swaps)

The new swap flexibility also allows the definition of annuities as a combination of two fixed legs with one leg bearing 0% interest.

In addition, each leg can now use a separate 'settlement lag' defining the lag in number of days between a cash flow value date and the actual payment date. All cash flows for the swap are then shifted to the next valid business day  $\geq$  value date + settlement lag.

Interest schedules are based on the calendar of the underlying rate index for floating legs, and on the calendar of the underlying currency for fixed legs.

Finally, all cash flows will be adjusted to the next valid business day of the merged calendar for all currencies involved.

### *Zero Coupon Bonds*

The Bond data definition has been extended by an attribute *zero coupon*. If set, the bond interest is compounded and a single final interest cash flow is generated at the end date of the bond life.

### *Bond Default Settlement Date*

Bond static data has been extended to include a new 'defaultSettlement' pa-

parameter, defining the standard settlement date of the issue; e.g., SPOT, S2, 1W etc. If no settlement date is specified in deal capture, this default settlement date parameter will be used to calculate the actual settlement date.

#### *Bond Deal Capture: Calculated Accrued Interest*

The user can force the bond deal capture to calculate accrued interest % and amounts to be paid / received at settlement date by leaving the accrued interest entry field blank.

#### *Bond Static Data extended: Optional Coupon Adjustment*

A new attribute 'adjustCoupon' has been added to the bond static data. If set, bond coupon payments will be calculated based on the potentially adjusted payment schedule, if set to 'no' (default), the coupon payments will be calculated based on the unadjusted schedule (blank roll convention'), but still assigned to the adjusted payment dates.

## Deal Capture

#### *Extended Blotter Data and Sort*

The blotter has been extended by the columns 'floatIndex' (floating rate index; e.g., 'LIBOR') and 'indexPeriod' (underlying floating rate fixing period; e.g., 3m).

All columns in deal blotters are now sortable. The default blotter page size has been changed to 20 rows.

#### *Inverse (reciprocal) Rates in FX Deal Capture*

FX rates can now be entered as reciprocal rates by appending 'r' to the rate; e.g., 125r for a traded rate in a JPY-CHF transaction.

#### *New standard transaction attributes*

- The new transaction attributes designate the user and date / time of deal creation. This information will be preserved during the life of the transaction. As before, the user / timestamp attributes show the user

and date/time of the last deal modification.

- A new standard transaction attribute 'acctunit' (accounting unit) is introduced. The attribute is an arbitrary string value, portfolio selections can use any substring of its value, and the selection is not case sensitive.
- A new standard attribute 'source' has been added to transactions and static data. It is set to 'CAP' if the item was captured on the user interface, 'GEN' if it was generated by Quantax, and 'IMP:interface' if it was imported by the named interface.
- A new standard attribute 'plrate' (P&L Rate) for FX Spot / Fwd / Swap transactions is introduced. This attribute behaves like a rate / price attribute and can be used in transaction reports and average price calculations. The attribute may be used to carry a historic 'base rate' per deal for user-specific P&L analysis.

#### *Extended Date Entry Capabilities: Weekdays, ultimo*

All date entry fields will now accept weekday names to specify the date of the corresponding weekday before or after the current date. In addition, a weekday can be prefixed with 'last'; e.g., 'lastmon' to denote the last Monday.

This feature allows the straightforward static definition of weekly reports; e.g., profit reports covering a rolling date window Monday to Friday: just select dates >LastSunday.

In addition, the strings 'EOM', 'EOY' and 'LASTEOM', 'LASTEYOY' (case insensitive) will be accepted and interpreted as next end of month, year and last end of month, year.

## Static Data

#### *New Static Data Object 'Rate Index'*

A rate index object identifies a valid rate fixing index, such as 'LIBOR' and

is referenced in transactions and assets supporting floating rate interest structures. Rate index object references (names) replace the 'index' transaction attribute of earlier versions.

#### *Static Data Change: Interest Futures Tick Size in %*

The definition of interest futures static data has changed. The tick size must now be entered as % (0.01 for 1 bp).

#### *Additional Short Term Relative Dates*

An additional set of short term relative date strings are now available, covering all business days < 1W.

### Operations

#### *Backdated End of Day Revaluations*

Backdated EOD revaluations with or without changes of historic positions and / or rates enable the user to perform valuation corrections any time in parallel to the normal operation of the system.

Historic rate scenarios can be applied unchanged to backdated valuations, or they can be imported and modified and then applied to backdated valuations. Any public scenario can now also be exported to the rate history database (overwriting the saved rate history).

#### *ToDo List Enhancement for Rate Fixing*

The Rate Fixing parts of the ToDo list has been extended by the columns 'rate index' and 'next fixing date'. As before, the user can drill down to the individual transaction.

### User Interface

#### *Portfolio Selection Options*

- Value ranges can now be entered for all date and numeric criteria in the Define Portfolio function.

Examples: Creating a portfolio of all bonds with coupons ranging from 3.5 to 5% is done by entering '>=3.5 <=5' as the selection parameter for 'coupon'.

A portfolio of all transactions maturing later than 1m and before 3m can be selected by entering '>1m <3m' as 'end date'.

- All relevant attribute values in the portfolio selection form can now be inverted by checking the new 'not' checkbox following the attribute name. This allows easy definitions of portfolios excluding certain values; e.g., the portfolio of all transactions with counterparties ≠ '-UNKNOWN-'.
- The portfolio selection has been extended by a field 'float index'. This field corresponds to the floating interest rate index of treasury and fixed income instruments based on a floating rate index, such as LIBOR.

#### *Variable Screen Font Size in Browser*

Arbitrary and individual changes of screen fonts and font sizes can be set by the user, without affecting standard headers and menus.

#### *Regional Date and Number Format*

A new config parameter 'regionalFormat' is introduced, allowing the user to configure Quantax for non-US date and number input and output. This is especially important for Web Queries through Excel, as local versions of Excel only recognize local dates.

### Integration

There are now a set of interface facilities that follow major industry standards, are safe, and can be configured flexibly.

#### *New Interfaces*

All interfaces have been reengineered to conform to the new interface framework introduced with the Rate Interfaces in release 3.5.

It is now possible to import and export all data in standard XML format on various media.

Exports can be started from the user interface, with a choice of objects, or

automatically upon modification of a deal or static data object. Using the 'source' attribute, exporting of imported objects can be tightly controlled.

The **XML Interface** is now the preferred import mechanism. The old interfaces remain available until release 4.1.

The **SQL Data Warehouse** structure has been further *normalized*, such that middle- and back-office interfaces and services will now be much more straightforward to implement. It includes all transactions and static data in relational form with full referential integrity

The new **Python interface** exports and imports the same data as the XML Interface. Static Data and transactions use the same format. The Python interface does not validate input and should be used in special situations only.

The new **Ticket interface** prints tickets or exports them to a file.

#### *XML Interface*

The new XML interface exports and imports transactions and all static data into an XML file. The file conforms to a standard XML Schema, which defines an XML namespace.

The XML Import validates Quantax objects, in particular named references to other objects; it is this much safer than previous Python imports. A tool such as XML Spy ([www.xmlspy.com](http://www.xmlspy.com)) is recommended to view and validate files during interface development.

#### *Changes to the Rate Import Interface*

The current Rate Import Interface will be complemented by an XML based rate import / export in a future release. This will be integrated with the standard Schema introduced in this release.

#### *Easily configurable standard intranet rate import*

Intranet rate tables observing a documented format can now be configured. This enables the user to integrate any number of new rate and volatility

sources without the need for software development.

This interface will be superseded by an XML-based rate import in a future release.

#### *Rate Interface now imports volatility curves*

If a Risk Factor ends with '.V', it is interpreted as belonging to a volatility curve.

#### *Excel interface supports DCOM for remote data access*

The Excel interface can now be used over DCOM on Windows to access rates on a remote server.

#### *Generic Integration of Custom-built Functions*

A new module custom.py in the Analytics package allows the inclusion of arbitrary custom functions and classes, which are typically site-specific.

All functions and reports configured in the custom folder are automatically presented by the main Quantax position menu function 'Custom Built'.

## **Documentation and Samples**

#### *Sample Risk Portal*

QuantaxPortal3, a new portal, represents a Macromedia Dreamweaver™ Web Site. It uses a template providing a two-dimensional menu structure.

#### *Sample Database*

A set of sample Quantax database files is now provided with the release.

## **Technical**

#### *Optimized Portfolio Cache*

Portfolio caching has been extended such that portfolios used by reports with attached portfolio will remain cached. This results in a significant performance boost for subsequent report executions – even when transactions within the portfolio change.