



Profit-Oriented Optimization of a Short-Term Liquidity Reserve

K-LaR

Many banks and savings institutions will only provide a risk identification number for their short-term liquidity (Liquidity Regulation). The product K-LaR makes the determination of the risk dimension for short-term liquidity risk with a high model quality possible. The dimension of the risk is verified through back testing. The K-LaR solution makes it possible for the bank to determine a sufficient short-term risk reserve that is as economical as possible. The basis for the determination of the risk estimate values are the externally determined, institute-specific net outflows of funds (for example via account Deutsche Bundesbank).

Bank payments are largely determined by the customer. And that makes it difficult for a bank to evaluate them. The determination of short-term liquidity reserve has been undertaken by banks in the past without and established concepts analogous to Value at Risk. With K-LaR, FIS KORDOBA offers an innovative, scientifically-based and field-tested banking solution in the area of liquidity controlling including estimate of liquidity risks. The basis of the solution is the concept "Liquidity at Risk (LaR) on the Basis of Extreme Value Statistics" according to Prof. Dr. Stefan Zeranski. This solution is also the basis for Liquidity Management. The Liquidity at Risk is the sum of expected net disbursements from all of a bank's autonomous payment movements during a business day, that with a given probability won't be exceeded. Autonomous payments are all those not within the scope of influence of the bank's liquidity management dealings such as customer deposits and withdrawals.

FIS KORDOBA's Liquidity at Risk solution is the first product to hit the market that fulfills the demands on the calculation and control of liquidity risk in short-term liquidity management, in combination with strict backtesting. The K-LaR solution covers the bank-supervisory demands on risk management and controlling. This forms the basis for an efficient controlling of short-term liquidity risk. And what is more, banks can use this new solution to profitably redeploy their often excessive liquidity reserves. K-LaR is ideal for use in domestic and foreign universal and direct banks.

Competence ●

Innovation ●

Functionality ●

Bank-supervisory requirements

§ 11 KWG (German Banking Act), § 25a KWG, Principle II (§ 11 KWG), Basel II and the MaRisk provisions result in credit institutes having to quantify their liquidity risk.

The main focus is on short-term liquidity risk up to one calendar month. From a statement made by the Bundesbank concerning Policy II one can gather that the danger of lack of liquidity in the short term is also indicated for solvent and profit-strong credit institutions.

§ 11 KWG states that banks must be able to meet payments at any time. Principle II reinforces § 11 KWG for the monitoring of banks' liquidity by the bank supervisory authority, without determining the liquidity of individual banks on the basis of their payments. The Liquidity Regulation also contains the use of institute-own liquidity risk measurement and controlling measures (for example, LaR).

§ 25a KWG, the Bank for International Settlements (BIS) and Basel II recommend to banks that they quantify their liquidity risk by institute. § 25a KWG is already interpreted as demanding that banks measure and control their liquidity risk with methods that go beyond Principle II.

Basel II and MaRisk regulate liquidity risk controlling in even more detail than before, whereas the new MaRisk contents must be completely implemented by the banks by 1/1/2008. According to MaRisk, it is to be guaranteed that the liquidity risks of a bank has to be considered when measured against risk steering and control processes if the liquidity risk is not included in the risk-bearing capability concept (no securitization with equity capital).

The bank's management has to keep regularly informed as to the liquidity situation and liquidity risk. One of the central MaRisk demands is that each bank have systems for measuring, monitoring and steering its liquidity risk. The use of appropriate risk estimates and model assumptions that stand up to rigorous testing is a major prerequisite for an effective and economically viable risk management within an integrated bank management system. The appropriateness of the liquidity risk measurements for various business processes can be checked via backtesting.

Range of solutions

The Liquidity at Risk solution enables an estimate of a bank's liquidity risk to be made. Based on external net outflows of funds of a bank, institute-specific, high (as of yet) non-observed liquidity requirements on a daily (or other) basis can be assessed during normal operations. Furthermore, risk estimates for run times of, for example, 5, 10 or 30 days is possible. In addition to risk estimate values (quantiles), the value for a "shortfall" is determined for each confidence level, i.e. for the expected value if the quantile is exceeded. In addition to statistic stress tests, event stress tests can also be undertaken. Back testing is an important functionality. In this case it is determined if the actual risk values exceed the estimated risk values (quantiles) for each confidence level, how often these are exceeded and how high the sum of the amount of the exceeding is.

- Competence
- Innovation
- Functionality

Highly flexible, text-oriented reporting supplemented by graphic images is also a feature. Reporting is possible in all languages and formats.

Methods

The POT (Peaks Over Threshold) method is used to quantify Liquidity at Risk. This is the most progressive extreme value statistics method for estimating large and as yet unobserved risks. Extreme value theory describes the extreme values of a time series, which is exactly the part of risk behavior that risk management is all about. The POT approach only analyses those values that exceed a given threshold value and thus focuses on large net cash outflows. The POT method has been a normal and successful part of the natural sciences and the insurance industry for some time. It is used, for example, to determine dyke heights in hydrology, model temperatures and ozone values in climatology and depicts rare events or major damage in the insurance sector.

Extreme value statistics is, according to the "Bank für Internationalen Zahlungsausgleich" (Bank for International Settlements) the best stochastic method with which large, (as of yet) non-observed risk values can be estimated and assigned to a specific probability. The image (see above) shows the mathematically proven slight variance between the estimated and actual risk values during operations. The model quality of the new FIS KORDOBA solution achieves up to 99.83 % in the verification of real data.

Data collection and evaluation

The determination of externally- determined payout and deposit surpluses for the suggested three years takes place on an individual basis per bank. These surpluses can be determined on the basis of account statements and documents concerning money disposition.

Consulting

The Liquidity at Risk is one of the strategic success factors of FIS KORDOBA Consulting. It makes it possible to formulate solutions for the future, even now.

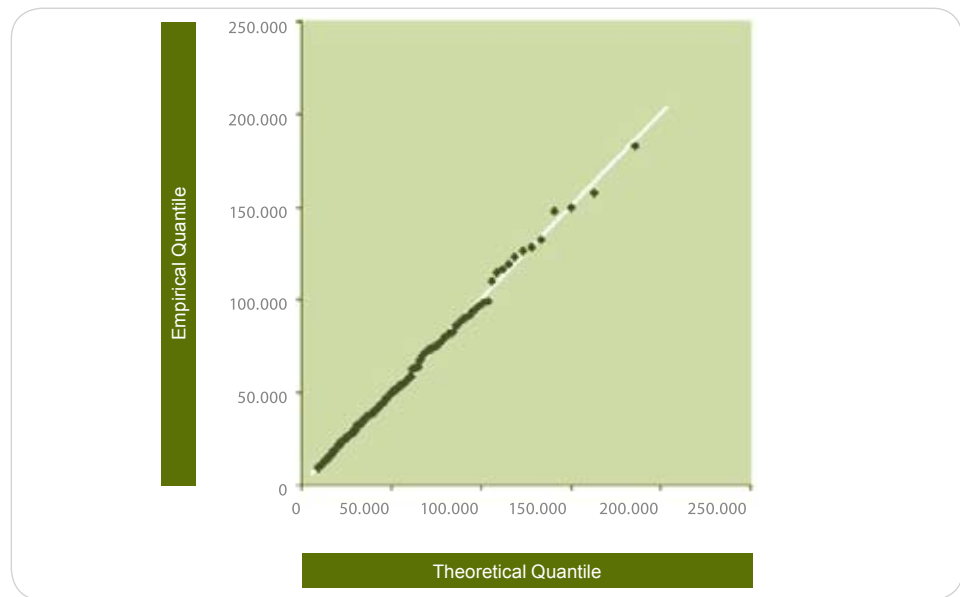
This is why FIS KORDOBA is continuously investing in the development of its strategic know-how in this field, so that we can offer our customers comprehensive Liquidity at Risk advisory services.

FIS KORDOBA Consulting enables its customers to achieve their goals, with cutting-edge technologies, liquidity risk knowhow and an in-depth knowledge of the banking business. The FIS KORDOBA Consulting Team offers comprehensive support for the installation of K-LaR: from analyzing the source data and calculating the autonomous balances, to helping use the LaR computing module and providing support when analyzing and reporting the summary tables.

Competence ●

Innovation ●

Functionality ●



Model quality based on actual occurring payment surpluses

Outlook

FIS KORDOBA has closed a partnership agreement with Prof. Dr. Stefan Zeranski, the inventor of the LaR concept for payment flows and author of the summa cum laude dissertation entitled "Liquidity at Risk for controlling the liquidity of credit institutes". So now there is nothing to stop us from learning from the source. With this exclusive cooperation with Prof. Zeranski and the know-how lead it gives us, market leadership in the field of managing short-term liquidity risks in bank payment flows is now FIS KORDOBA's avowed goal.

Summary

The new Liquidity at Risk solution for short-term liquidity management estimates the expected net cash outflows from all of a bank's autonomous payment movements during a business day, that with a given probability won't be exceeded. The risk is calculated using the POT method, which has been in use in the natural sciences and the insurance industry for many years. The LaR concept withstands strict backtesting.

In a nutshell, the K-LaR solution supports a bank at three levels: it fulfills one of the key regulatory requirements; it is the first product for controlling the liquidity risks arising from the payment flows of a bank; and it can raise interest earnings via a statistically proven redeployment of liquidity reserves.