ACTIVEVIAM

Analyzing data. Empowering the future.

Liquidity Management in Times of Regulatory Pressure

Liquidity management has become an integrant part of any bank's sound risk management practice. The collapse of Lehman Brothers highlighted the need for banks to consider liquidity as a scarce resource. Since the global crisis in 2008, market reforms are flooding the financial sector, forcing banks to manage their intraday liquidity in a more prudent and a more effective manner. With this in mind, how can banks quickly absorb the structural changes imposed by the regulators? How can banks make sense of the resulting flood of data? And finally, what is best practice when to reporting liquidity ratios in a fast, accurate and flexible manner?

The tightening of the regulatory noose

Regulators aim to avoid situations where banks run out of liquidity. An example is the Basel III regulatory framework. Under Basel III, financial institutions are required to not only increase the amount of capital reserves they hold, but also demonstrate their liquidity risk positions.

Measuring intraday liquidity risk

In January 2013, the Basel Committee on Banking Supervision (BCBS) has introduced two mandatory components to tackle liquidity risk, namely the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). Although these ratios promote the resilience of banks to liquidity shocks, they don't cover intraday liquidity. As a result, the BCBS, in consultation with the Committee on Payment and Settlement Systems (CPSS), has issued a new set of proposals. These proposals lay down suitable metrics to monitor intraday liquidity - metrics which outline the quantity of funds which can be accessed by banks during a business day to ensure payment obligations are met at the time expected.

Eight intraday liquidity indicators

In its consultation paper, the CPSS explains that banks should monitor and report their maximum, average and minimum liquidity requirements per month based on eight indicators. Those include the firm's daily maximum intraday liquidity usage, available intraday liquidity at the start of the business day, total payments settled and received and the timing of intraday settlements. In addition, the CPSS highlights the significance of considering the likely impact of a bank's intraday liquidity requirements in times of stress. As a result, a bank should test against stressed scenarios that could be caused internally, by counterparties, by its own customers or by a market-wide liquidity event, such as a market shift or a credit downgrade. Banks are expected to gauge what impact these stressed scenarios would have on their real numbers.

The reporting of the monitoring tools will commence on a monthly basis from January 1, 2015 to coincide with the implementation of the LCR reporting requirements. Therefore, banks are under pressure to find solutions that will allow them to monitor intraday liquidity and report intraday liquidity risk.

> *A bank should actively manage its intraday liquidity positions and risks to meet payment and settlements obligations in a timely basis, under both normal and stressed conditions and thus contribute to the smooth functioning of payment and settlement systems.*

Principles for Sound Liquidity Risk Management and Supervision
Basel Committee for Banking Supervision

The data challenge

Data management and analytics are very much at the heart of the matter now that banks need to meet a number of challenging requirements, among which are the following:

Accurate and flexible reporting

Not only must banks submit an increased number of quantitative metrics, but they also must produce liquidity reports with a greater level of detail. Ratio breakdown according to multiple criteria, such as counterparty, currency, maturity level and legal entity, is a good illustration of the multi-dimensional nature of liquidity reporting. Reports showing aggregated figures or incomplete information are not acceptable. Therefore, banks must have the ability to drill-down into their data to a greater level of detail. This translates into the aggregation and analysis of soaring data volumes. Intraday liquidity reporting requires the ability to look at data under various dimensions, filtering or grouping it on-the-fly. For instance, adding the EURO currency to a report that was initially created for the Nordics region and receiving updated results instantly. This simple example only highlights the paramount importance of flexible analytics.

## Respond to ad-hoc demands from the regulators

Although regulatory guidelines require banks to submit liquidity reports on a monthly basis, banks should not be oblivious to the fact that regulators are likely to ask any question on an ad-hoc basis, at any time. Such questions could be: Who are the Top 10 counterparties that represent 80% of the bank's funding structure? Who are the Top 100 private customers with demand deposits showing a maturity of less than a month? The point is that banks never know in advance which information will be asked from them and how complex the question will be.

The challenge, therefore, is how to respond to unplanned demands in a timely fashion. Solving this challenge actually requires ad-hoc reports on-the-fly, without restraint.

React to a liquidity crisis in real-time

The main reason why regulators impose extended control points is to mitigate the risk of a new liquidity shock, provoking a global crisis. Banks must eventually demonstrate their resilience to any liquidity crisis is real-time. Do they have enough liquidity if the case of a new Lehman Brothers occurs? What would happen to their LCR ratio if a product that takes the biggest part of their liquidity ratio calculations is suddenly downgraded as an illiquid asset? What happens in the case of a major funding event?

Liquidity reporting measures are transforming what was a backward-looking practice, into one where the ability to predict liquidity requirements is priority. Therefore, a key requirement is the ability to run such simulations and what-if scenarios on the fly, using real-time data.
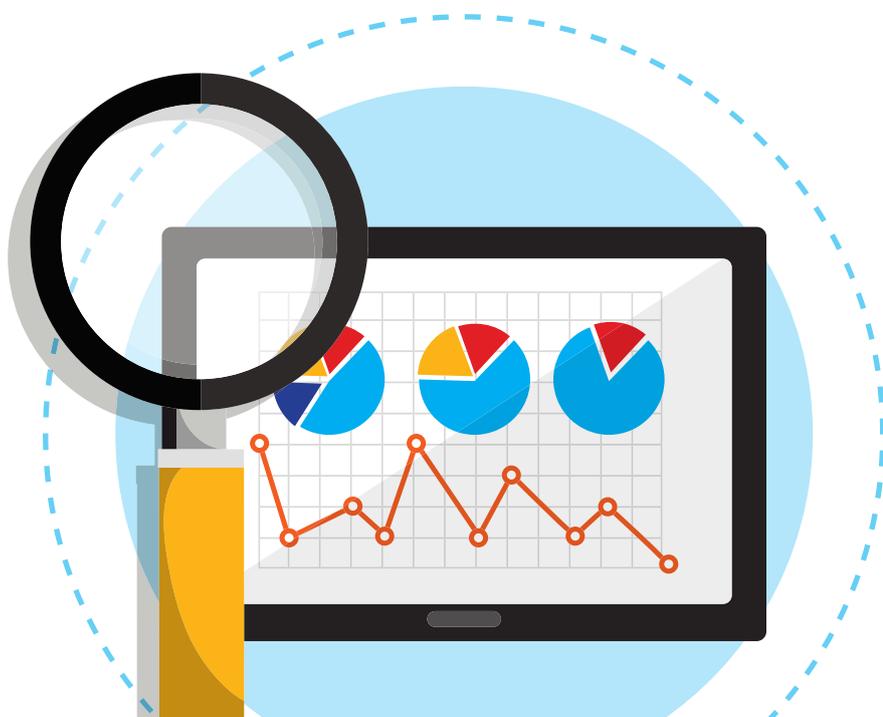
The business intelligence itch

It is no surprise that intraday liquidity monitoring tools call for high-performance analytics capabilities. But do banks have the right tools in place?

Pre-canned reports

Historically, banks have relied on pre-canned reports that are generated off the back of a conventional relational database, coupled with an in-house developed, or a 'packaged' reporting layer. However, reliance on such business intelligence architecture to meet intraday liquidity reporting is proving inefficient. One of the main reasons is that all data must be pre-aggregated before it can be consumed into the reporting environment. As a result, liquidity specialists are unable to perform on the fly, flexible analytics: Breaking down the LCR ratio according to classifications that had not previously been configured in the reports – for example a new currency, requires the IT database team to entirely re-write the reports, which could take up to weeks.

Limited criteria sets

Furthermore, a relational database simply cannot hold more than a handful of criteria in its structure, which prevents users from grouping and filtering the data based on the analysis axis that are relevant during query time. A simple Top Count query, scanning hundreds of thousands of counterparties against multiple criteria could be extremely slow, if not simply impossible to complete.

Such architecture turns out to be very expensive to maintain. It forces the bank to bear the incremental costs of setting up large reporting teams, without giving the guarantee that reports will be produced in a timely fashion.

Time for a change: Introducing ActivePivot

In this context, the ActivePivot in-memory aggregation engine represents a cost-effective approach to achieving intraday liquidity monitoring and reporting in a timely, accurate, and flexible manner.

Aggregation of large volumes of complex data

ActivePivot extracts large volumes of cash flows scenarios from risk engines and other operational systems, loads them in memory and aggregates them on-the-fly. It applies complex calculations on large amounts of data to deliver liquidity ratios and curves in sub-second. Examples metrics include the LCR, expected liquidity exposure, or forward liquidity exposure. Not only does ActivePivot calculate these metrics at lightning speed, but it also makes them accessible on-the-fly so that users can explore them as they think.

ActivePivot differentiates itself from other in-memory databases in that it uniquely allows users to assemble metrics into new scenarios on an ad-hoc basis. An example of a recomposed scenario would be: The liquidity exposure based on all cash flows where the counterparty is bank A, the currency is the British Pound, the maturity is less than November 2015, minus the scenario where the counterparty is Bank B, the currency is the Euro and the maturity is greater than March 2015.

ActivePivot processes all data in memory and doesn't require any pre-aggregation. As a result, any scenario can be generated at query time and delivered in a split-second. Because any business logic can be injected in its engine, ActivePivot can consume any type of scenario, whether scenarios are regulatory-driven or bank-defined. This allows banks to shape their analysis and reporting tools to meet their own liquidity risk profile and operating model.

Flexible analytics

Liquidity reporting requires the ability to change the way a set of cash flows is being described, depending on how data needs to be looked at. Using ActivePivot, liquidity managers can group data, filter data, calculate additional measures and add or remove criteria - all without relying on IT to produce these reports for them. Adding a new currency takes only a few drags and drops. Top Count reports are generated on-the- fly. Users can also run simulations and project scenarios. For instance, what would happen to liquidity ratio levels if Bank A is merging with Bank B? Because ActivePivot can process transactions and analytical queries within the same environment, what-if analysis is executed on real-time data. As a result, the bank is better prepared to respond to any unexpected request formulated by the regulators, and to any funding event or liquidity crisis.

Operational intelligence

Beyond regulatory compliance, ActivePivot also allows management to adjust the bank's trading strategy based on how liquidity ratios evolve over time. For instance, a forward liquidity exposure curve showing a negative slope is a sign of a structural liquidity issue, which requires the bank to make some strategic long term decisions. Tactical decisions can also be made off the back off ActivePivot. Typically, a trading decision will be required if at some point in the future, only 59% of the liquidity requirements can be classified as high quality liquid assets, whereas, currently, the Basel III LCR ratio is set at 60%. Bringing the ratio to the 60% threshold could result in selling securities or bringing back some already pledged collaterals from a clearing house. Executive board members and liquidity teams alike, can use ActivePivot as a management tool to steer the bank in such a direction that it meets its liquidity objectives.

Leverage existing investments

At ActiveViam, we propose a different approach that takes into account a bank's time-to-market objectives, cost constraints and future requirements. With ActivePivot, companies do not need to re-invent the wheel and rip out existing systems. ActivePivot seamlessly integrates with underlying infrastructure in a fast and non-intrusive manner.

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About ActiveViam

ActiveViam provide precision data analytics tools to help organisations make better decisions faster.

ActiveViam started in 2005 with the vision of leveraging in-memory technology to create an analytics platform where businesses could leverage the largest data sets without restrictions, keep them up-to-date in real time and use them to empower their decision makers.

Our goal at ActiveViam, is to let organisations not only make decisions faster, but better; to not only reach their data, but their potential; to not only see their data, but find their way into the future.

ActiveViam is a privately owned company with offices in Paris, London, New York, Hong Kong and Singapore.

For more information please visit:
www.activeviam.com