

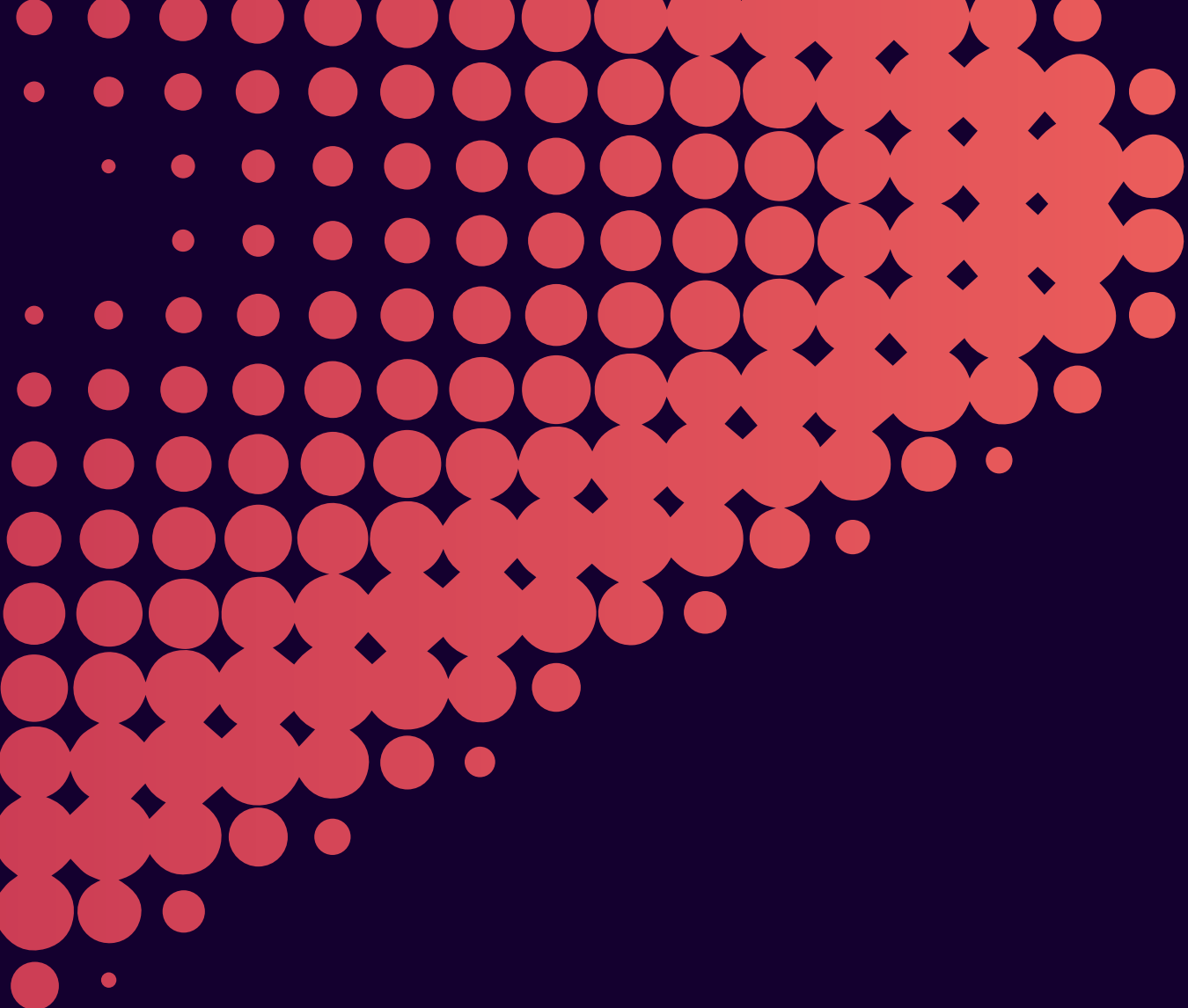


# Market Risk for the Front Office

## Trading in the Hot Seat

- Stop relying on overnight batches
- Don't wait for hours for faulty data to update
- Explain your PnL in minutes





# Introduction

Risk controllers and risk analysts may sit together with traders on a trading floor but the two functions, while complementary, don't always run smoothly as one. The market risk desk has to check, re-check and validate the numbers from the previous trading day and make sure they match up or explain why they don't. The virtuous circle continues when, at the start of each day, traders then look at their Value-at-Risk (VaR), sensitivities and market data to validate the numbers in the portfolio.

Highly volatile markets and overnight data batch runs leave a lot of room for error. What if the system used the wrong market data? What if something was incorrectly entered?

Trading desks are under enormous pressure to generate profit and manage risk while doing so and the way a bank manages its market risk is fundamental to reaping the highest rewards from the least amount of risk.



# What obstacles do traders face in reporting risk?

## Time & Volatility

Time may be the biggest enemy of a trader. Getting in and out of a trade at the right time requires precision and skill while reconciling end-of-day profit and loss can be a time-consuming function.

Managing a book of hundreds of thousands-to-millions of trades means keeping an eye on a slew of risk factors and measures while keeping within a set of parameters. Traders are bound by the decisions of a bank's Risk Management Committee which defines the risk appetite of the bank and sets forth guidelines on risk metrics (volatility), risk measures (VaR/Greeks) and trading limits.

Proactively monitoring risk exposure while trading and managing a portfolio without a tool that provides train-of-thought analysis on real-time data is not an easy task. You have to make sure that the data that a risk engine produces – PnL (mark-to-market prices), sensitivity indicators and PnL vectors – works to provide you with a crystal-clear picture of your risk at the end of each day.

Volatility may very well be the second biggest enemy of the trader, especially options volatility. Monitoring beta, or how a financial instrument performs compared to the broader market, is one thing but tracking risk exposures on non-linear derivative instruments requires more intensive calculations.

Let's say a trader on the equity desk bought a large number of \$70 call options (with the right to purchase the shares at the lower price but reap the reward on the higher price) on a particular stock that was trading at \$80 per share. Following that trade, a news report is released that says a new product the firm has developed does not function as it should and the share price hits an intraday low of \$75. The gamma on this trade is narrowing as the price is getting closer to the strike price and some action may need to be taken to curb risk.

An equity trading desk has (at least) tens of thousands or hundreds of thousands of positions which means for every option, there is one delta figure that represents a value change in the stock price that needs to be monitored. With 100,000 updates of market data per second, this means for every price the trader needs to see where it hits the sensitivities and how it affects intraday profitability. Equity traders generally use options to arbitrage an index (such as the S&P 500) against the index components so these are popular strategies. Creating a "ladder" or series of options trades at different strike prices is also a way of taking advantage of price dislocations and logging a profit. But managing the risk for these types of sophisticated approaches requires real-time management of the price changes and impact on risk measures in the portfolio.



# Generating Flash PnL

At the end of the day when markets close, traders are obligated to produce a flash PnL which needs to be sent to management. If the trader started the day with a flat book and now it's showing a loss of \$150,000, s/he needs to explain what happened. New trading activities will impact the change as do changes in the market and risk factors (e.g. a change in interest rates or foreign exchange rates).

Within a portfolio of 100,000 trades, the trader has to look at the sensitivity indicator for every risk factor and see by how much the PnL has changed compared to the risk factor, which measures the "shock" on PnL and the size of the change. This means collecting market data, tidying up sensitivity indicators and re-running the pricing engine. For every underlying and every risk factor the trader has to be able to explain the change.



# How can a trader manage all this?

Atoti+ is an in-memory solution with a flexible BI tool backed by a first-class data analytics platform. Other solutions that don't perform in-memory analytics struggle with creating a report for PnL Explain in a timely manner – what takes Atoti+ 15 minutes to do can take hours with another system.

Atoti+ succeeds in performing real-time multi-dimensional data aggregation and analysis on terabytes of data where other solutions fail. The head of a trading desk can perform limit setting and exception reporting and share reports not only at his or her desktop but across the bank and globally.

Atoti+ is a lightweight system that sits on top of a bank's technology architecture and merges with its existing systems (risk engines, market data, etc.), serving as a single point of truth for market risk and front office risk to consult.

Users can perform calculations at high speed and instantaneously see updates on the analytics as the data is changing. The software allows users to view enterprise-wide market risk down to the most granular-level detail through interactive analysis and view continuous intraday risk.

For a trader, this means being able to slice and dice data and pinpoint where an error may have occurred and quickly fix it.

Time and speed are of the utmost importance when re-estimating PnL Explain – it needs to be performed at the beginning and the end of each day. If you have to rely on IT to do this, it could take hours after you should have already been heading home at the end of a busy trading day.



Need more details  
or want to ask us a question?

Visit us at [activeviam.com](https://activeviam.com)

# About ActiveViam

ActiveViam provides precision data analytics tools to help organizations 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 organizations 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 London, New York, Paris, Singapore and Hong Kong.

For more information please visit: [www.activeviam.com](http://www.activeviam.com)

## LONDON

6th floor,  
Shaftesbury House  
151 Shaftesbury Avenue  
London WC2H 8AL  
Tel: +44 20 7836 8820

## NEW YORK

550 Seventh Avenue,  
19th Floor  
New York, NY 10018 USA  
Tel: +1 646 688 4442

## PARIS

46 rue de l'Arbre Sec  
75001 Paris, France  
Tel: +33 1 40 13 91 00

## SINGAPORE

80 Amoy Street  
#02-01  
Singapore 069899  
Tel: +65 6816 4988

## HONG KONG

21/F, On  
Hing Building,  
1 On Hing Terrace  
Central, Hong Kong