



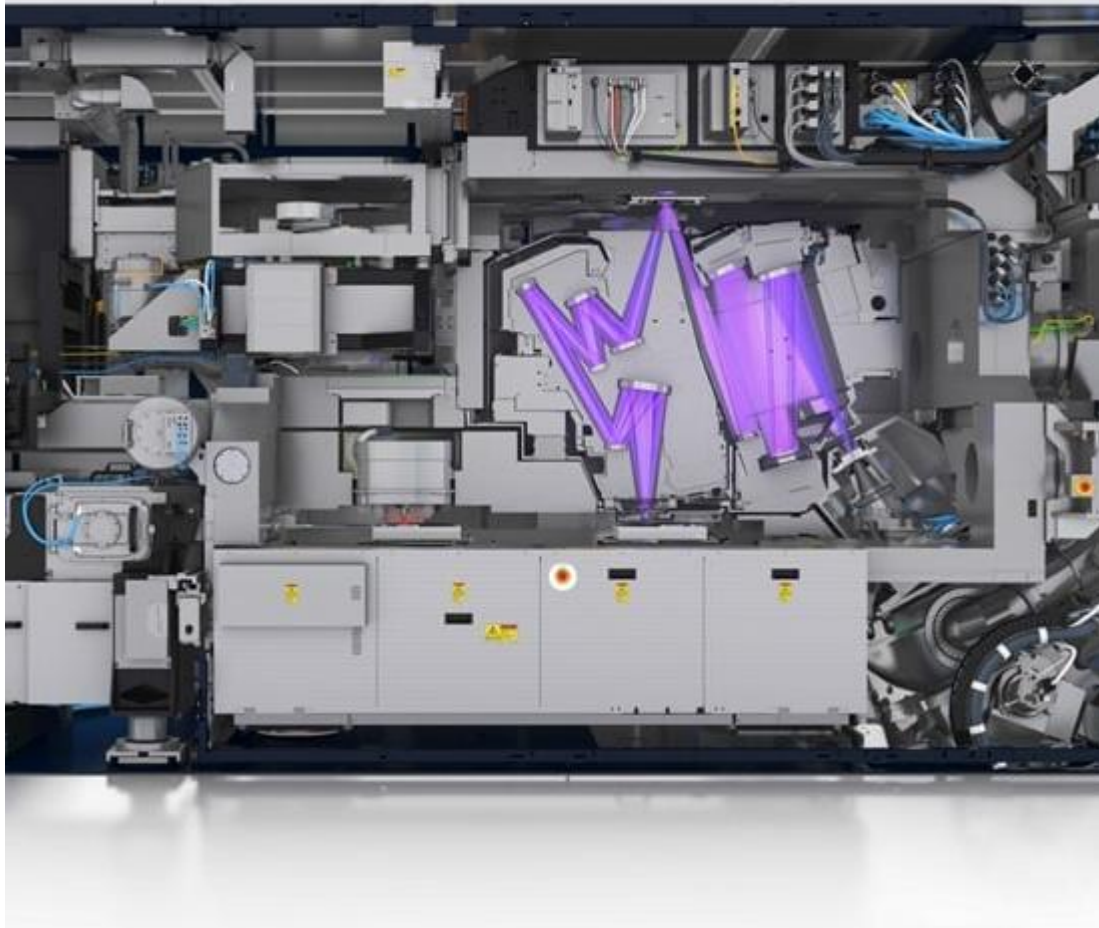
Improved FX Exposure Forecasting with Artificial Intelligence

Pitch for DACT Treasury Award 2023

ASML Treasury team

What is inside this box? And why is this important for Treasury?

ASML



ASML is a design & assembly company

- All parts of this machine are sourced from different suppliers
- Some parts are sourced in USD
- ASML sells its machines in EUR worldwide

ASML is exposed to the EUR/USD exchange rate

Purchase hedging program

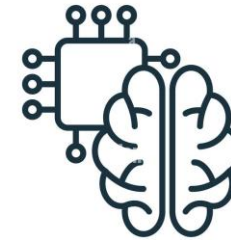
To limit our EUR/USD exposure we have a USD purchase hedging program in place

ASML

Challenges

- The forecast for the hedging program is inaccurate (70%)
- Differences between forecast and actuals leads to:
 - being over or under hedged
 - ineffectiveness in hedge accounting
 - economic impact (e.g. impact on gross margin)
- The forecast creation is
 - Labor intensive
 - Excel heavy
 - Time consuming
 - Prone to manual error

Solution



MACHINE LEARNING

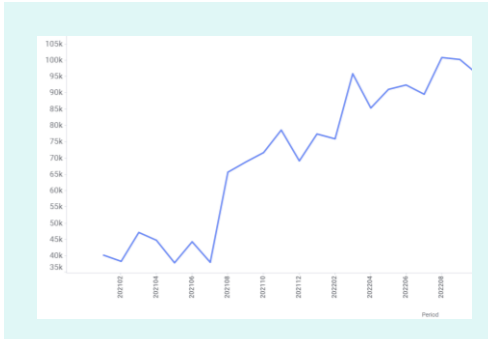
- Artificial Intelligence providing the forecasted USD intake without manual interference
- Recognizes patterns and trends
- Learns every month
- Scalable vertically and horizontally

AI-Powered USD FX Exposure Forecasting

Our journey to implement the AI solution

ASML

1 5 years of historic USD intake actuals



2 20 Free open-source Python algorithms



3 Teaching algorithms with first 3 years of actuals



4 Testing accuracy on last 2 years of actuals



5 Best 4 algorithms were further developed and re-tested



6 Best algorithm was further fine-tuned



7 Aligning with internal stakeholders



8 Better forecast leading to more efficient and effective hedging



AI-Powered USD FX Exposure Forecasting

In blue we see the forecasts on monthly future USD intake



Trend Analysis - Historic Actuals vs Latest Model Prediction (in USD)



Accuracy
96%
Average Accuracy (Last 3 Months)



Key business values

- Improved forecast accuracy (from 70% to 96%) leading to more effective hedging
- Minimize impact of EUR/USD movements on ASML's gross margin
- More efficient input for hedging without waiting time and manual effort
- The AI solution is learning every month ensuring adaptability to business movements
- Resources can be used for more value-adding activities instead of processing of data
- AI provides increased level of data insights



Key learnings

- Cross functional collaboration is essential for a successful outcome
- The basis of the AI solution is a free open-source python algorithm, so AI solutions are not only for the happy few
- The AI use cases in Treasury and broader finance organizations are endless



Thank you !