FINBRIDGE

Success Story: pbb and Finbridge – Streamlining the HRL Process through Automation and Machine Learning

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About pbb Deutsche Pfandbriefbank AG

pbb Deutsche Pfandbriefbank AG is a leading specialist bank for real estate finance and public investment finance with headquarters in Garching near Munich and a number of locations in Germany and Europe.

About Finbridge

Finbridge is a specialized consulting firm with more than 100 employees that offers consulting services primarily to banks, financial service providers and asset managers.

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The cooperation between pbb Deutsche Pfandbriefbank AG and Finbridge GmbH & Co. KG aimed to improve the existing hidden reserves / losses (HRL) process through automation and the use of machine learning.

Hidden reserves / losses for financial instruments

Hidden reserves / losses describe unrecognized positive and negative valuation effects of financial instruments recognized at cost. Specifically, the amount of the charge or reserve is driven by numerous factors: for example, changes in book or market value components, e.g., yield curves or credit spreads, can be a driver of the HRL change.

The analysis process aims to provide a supporting statement on the development at trade and portfolio level and to discover overarching trends. Furthermore, it is about localizing implausible values, in other words irregularities in the data, and identifying the underlying causes.

More time for the actual analysis

The conventional regular analysis of hidden reserves / losses for a large portfolio is labor-, time- and resource-intensive and involves manual steps in data preparation and in the subsequent analysis of market and book values. As part of the quarterly closing process, tens of thousands of positions are analyzed on a regular basis. Implausible results can be identified and investigated more easily in the modernized process.

The key to success lies in the combination of automation and machine learning

This is also confirmed by Rahel Kirsch, Associate Director Financial Instruments Accounting:

"We have found that through automation combined with machine learning, we can both improve established explanatory processes, but also gain new insights through the new methodology.",
Rahel Kirsch, Associate Director Financial Instruments Accounting.

To improve the process, the first step was to automate data retrieval and preparation using Python to bring the necessary data from financial and market factors into a uniform format, to perform initial data checks, and to make necessary corrections for the ML application.

But which ML approach is the right one for the problem at hand?

"The combination of automation, decision tree-based models, ensemble learning, and Explainable AI (XAI) has helped us increase our productivity and efficiency while producing robust and understandable results in non-linear contexts.",

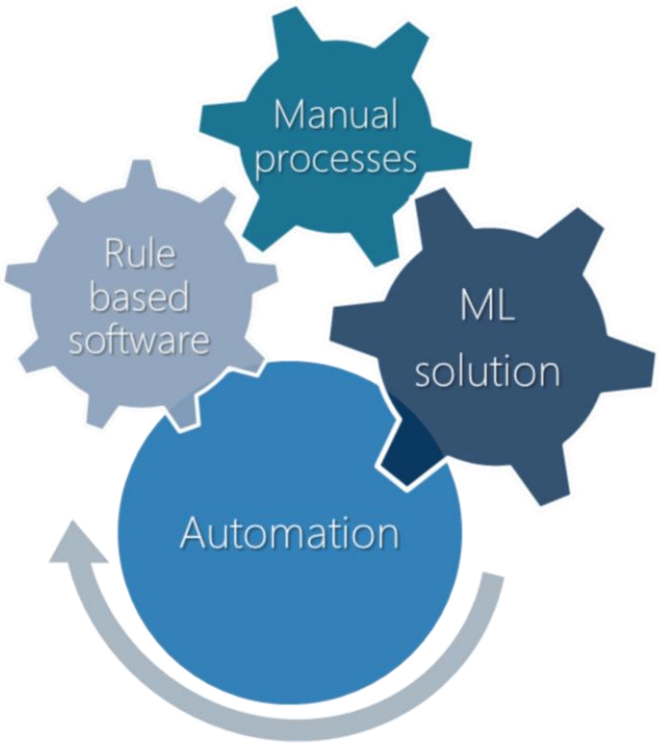
Lara Knapwost in her role as project manager for the topic from a Data Science perspective.

In addition, to generate added value, the results must be robust, low-maintenance to produce, and intuitive for the customer to understand - this is given when using decision tree-based models. With neural networks, on the other hand, the process of calibration in this case is complex, intransparent, and time-consuming. The new process emphasizes that results are accompanied by interactive and graphical representations to increase interpretability.

The new process represents an alternative explanatory approach

So far, the HRL has been decomposed into its components change in book value and change in market value as well as their sub-components. With the ML approach, the influencing factors can be specifically identified. The ML approach thus provides an alternative to calculating the HRL from the known components and can estimate the expected change in the HRL. This estimate can serve as a reference value.

The key success factor of the machine learning approach was the selection of the appropriate influencing factors, the so-called feature selection process. Now this can be used in the regulating process to explain changes. If an HRL value changes significantly compared to the previous month, the ML process can provide an immediate explanation. This eliminates the time-consuming search for conspicuous transactions and the manual investigation by the user.



Conclusion

The application of innovative ML techniques and automation has improved the analysis process of hidden reserves / losses at pbb by significantly reducing the overall effort, increasing the degree of automation and relieving pbb staff of routine tasks. The potential of ML techniques has been recognized, although their calibration in the overall process still requires an ongoing build-up of experience to optimize their use.

The application of these methods to the hidden reserves and encumbrances process is just one of many possibilities. Dr. Carsten Keller - head of the ML team at Finbridge - is convinced that this approach can also be applied to other processes:

"Analogously, changes in present values can be estimated and checked for plausibility. In principle, almost any type of composite financial figure can be accurately explained.",

Dr. Carsten Keller, Partner at Finbridge GmbH & Co KG.

Innovative machine learning in the financial sector

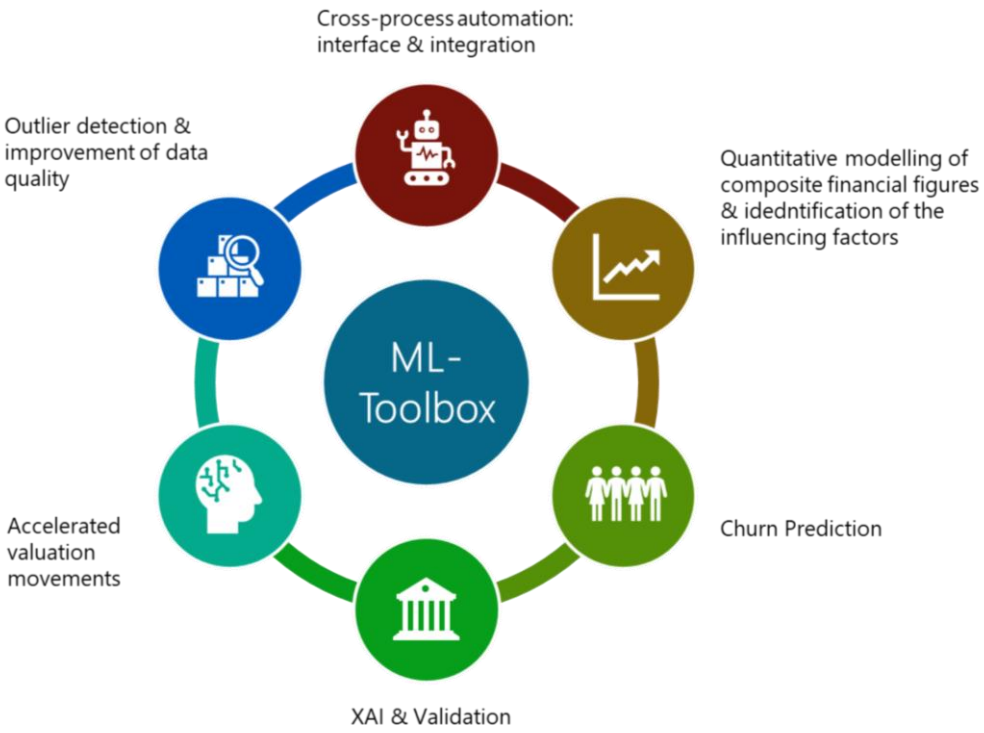
Our many years of experience and technical expertise, combined with our deep understanding of financial instruments, regulation, and banking processes, enable us to develop tailored automation and ML solutions for specialized fields such as finance, risk, treasury, and others. This is how we support you in the successful realization of your project goals.

Our Finbridge ML toolkit approach provides you with the ability to efficiently and accurately analyze complex financial data to discover new insights and optimization potential. We develop individual models tailored to your needs that deliver robust and comprehensible results. In doing so, we rely on explainable AI methods (using XAI) to enable you to interpret the results intuitively.

Our services around ML include the automation of data procurement and preparation, the development of decision tree-based models and ensemble learning, as well as the application of ML techniques to improve analysis processes and the plausibility of key financial figures. In doing so, we consider requirements of regulators such as BaFin as well as your internal guidelines.

Let us convince you of our expertise in machine learning and contact us.

Finbridge is your reliable partner for project support and innovative solutions in the financial sector.



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More Insights

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