

At Bristol Gate, we believe that aiming for high dividend growth is more than a strategy; it's a pathway to sustainable wealth. Our long-term investment experience has always applied data to help us improve our investment process. The investment process begins with a unique Machine Learning Model that forecasts dividend growth 12 months forward, allowing us to invest in what we predict will be the highest quality dividend growers, uncovering exceptional opportunities for our clients. This piece will go into the history and development of our model, and how it contributes to our investment process today.

Early Days to Advanced Analytics

Since the inception of our US Equity Strategy in 2009, the investable universe has been defined by predicting dividend growth. At the onset, this meant employing a linear regression model, a statistical approach for predicting future outcomes based on past data. This initial model utilized only a few features to forecast dividend growth. Despite its simplicity, this was the foundation upon which our future innovations would be built. As technology evolved, access to advanced data management techniques became available and we hired our first Data Science specialists in 2011 to identify how we could improve our predictive capabilities.

Between 2013 and 2014, the firm ventured into more advanced territory by adopting a two-stage Machine Learning Model. This new approach, cutting-edge at the time, utilized SAS (Statistical Analysis System); a software suite used for advanced analytics. The model combined classification and regression, offering a more nuanced understanding of dividend growth prospects.

A New Era with Machine Learning

A significant leap came in 2017 when we began developing a new model based on Extreme Gradient Boosting Trees, an optimized distributed gradient boosting library designed to be highly efficient, flexible, and portable. This marked a milestone in our journey, as it allowed for more accurate predictions by handling various types of data and enhancing the model's learning capability. This model was the firm's first use of modern era artificial intelligence.

In 2018, the model was further enriched by integrating new sources of data, such as analyst estimates and more specific data from company quarterly filings, providing deeper insights into the securities we were analyzing. This addition was a testament to our commitment to leveraging comprehensive data to inform our investment decisions.

Along with this integration of new data, we re-trained the model using Light-GBM in this iteration (Ke et al., 2017). Light-GBM is a framework that uses the gradient boosting concept for tree-based algorithms. Known for its efficiency and speed, it has significantly improved our model's performance. Moreover, Light-GBM's sophisticated design simplifies the modeling process, ensuring consistent, high-quality predictions without the complexities often associated with fine-tuning and other nuanced model characteristics.

Throughout the years we have also enhanced our research and development capabilities through collaborations with distinguished academic institutions such as the University of Toronto, University of Waterloo, and York University. These partnerships with local universities, all key players within Toronto's robust AI ecosystem, have provided us access to cutting-edge research and top-tier data science talent.

Our journey hasn't been without its challenges. Data imbalance, missing information, and outliers are just some of the hurdles we've faced. Yet, each challenge has been an opportunity to refine our

model and process. Along the way, we've adopted strategies to address these various data concerns, ensuring our predictions remain robust across different market conditions.

The Impact on Our Investment Strategy

By automating the forecasting process, we've significantly reduced the prediction costs and eliminated biases that can affect human judgment. This efficiency allows us to analyze a broader range of companies, ensuring we don't overlook potential opportunities.

Our investment strategy sets us apart by proactively identifying high-dividend growth companies. Unlike many other funds that rely on historical data and conventional analyses, our approach allows us to focus where traditional fund managers don't, thus providing our clients with unique, forward-looking investment opportunities.

As we move forward, we're excited to continue leveraging AI and Machine Learning to further enhance our investment process. We're exploring ways to extend our model's predictive horizon, delving into neural networks, and incorporating more diverse data sources.

Beyond the Model at Bristol Gate

Beyond our primary dividend growth prediction model, we have made significant strides in other scientific endeavors. Over time we have developed an array of tools designed to refine our investment process, including a dynamic idea generation platform that leverages data insights to uncover new investment opportunities. As another example, our threshold rebalancing technique, informed by rigorous data analysis, reduces unnecessary transactions and enhances efficiency. These innovations, among others, underscore our commitment to leveraging leading-edge technology to improve not only our investment strategies but also risk management and operational effectiveness, ensuring we stay at the forefront of the investment landscape.

Conclusion

Since our beginning 15 years ago, our steady improvements have led us to being a leader in dividend growth investing. We will continue to uphold our commitment to delivering outstanding results for our clients and seek new ways to understand and capitalize on market opportunities.

Bibliography

Guolin Ke; Qi Meng; Thomas Finely; Taifeng Wang; Wei Chen; Weidong Ma; Qiwei Ye; [Tie-Yan Liu](#) (2017). "[LightGBM: A Highly Efficient Gradient Boosting Decision Tree](#)" (PDF). *Neural Information Processing System*.

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