Securities Analysts Journal®

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Feature Articles

This month's focus: **Artificial Intelligence in Finance (Basics)**

Articles

An Introduction to Machine Learning in Finance

This paper provides a brief overview of machine learning, which is the essence of artificial intelligence breakthroughs. In this paper, instead of focusing on specific methods and applications, we explain the basic concept and practical key points of machine learning.

How Can Machine Learning be Applied to Investment Processes?

This paper explains basic advanced machine learning methods, outlining their potential and limitations when utilized for asset management. There is some misunderstanding in Japan that machine learning can be AGI (artificial general intelligence). However, neither 'machine learning' nor 'AI' refer to AGI but rather advanced machine learning. Here, we endeavour to explain things plainly so that security analysts in whatever field can understand the fundamentals and take away some idea of how machine learning and AI can be applied to equity investment. Therefore, we focus on explaining the way of thinking behind each machine learning method. Starting from association rules to neural networks and deep learning, we summarize each tool and give some examples of the ideas for investment processes. In addition, we also introduce reinforcement learning. After understanding each tool, we conclude by briefly referring to the future role of security analysts as people, who will not be replaced by machine learning in the foreseeable future.

History of Relationship between Artificial Intelligence and Finance

Artificial intelligence is playing a very active role in the financial markets in areas completely unrelated to fundamentals, such as how profits are seized before human error is uncovered and rectified, and how to detect the premonitory symptoms to a large order. These sorts of trades account for a large portion of market liquidity, and in a

downward trend automatic bulk selling in an attempt to cash out at the top of the market invites flash crashes. Also, as artificial intelligence moves towards covering all markets at the same time, there is even the risk that crashes spread worldwide. Meanwhile, a trend has emerged in recent years whereby artificial intelligence is being used to predict fundamentals. On the question of whether economic phenomena can be logically understood by artificial intelligence, however, the answer is still not clear. For the future of the financial markets, we outline the necessity of artificial intelligence to clean the markets.

Many businesses using artificial intelligence (AI) have been born in several industrial fields. And, in the financial field as well, businesses using AI (we call it 'fintech AI') are gradually expanding in the US, an advanced country in terms of financial and IT businesses. In the US, many financial institutions and IT ventures are creating new fintech business models using AI. This report outlines their activities such as R&D and the commercialization of fintech AI.

Prospects

Economic and Industrial Analysis

Point of View

Article

The purpose of this paper is to verify the effects of timely disclosure regarding capital investment on the stock market. The empirical analysis gives the following results. Relatively high (low) growth firms have a significant positive (negative) CAR on event day. In addition, the stock market gives a more positive (negative) valuation for implementing large-scale capital investment to relatively high (low) growth firms.

Book Reviews

SAAJ News