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Feature Articles

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

This paper introduces the latest trends in financial text mining technology, especially methods to acquire more complicated rules by using advanced machine learning methods for large scale textual data. First, we introduce two methods to acquire complicated rules which conventional keyword-matching methods hardly extract, by network analysis and neural networks. Then, we explain a computational method to analyze sentence structures and extract important causal relations for the financial domain. These techniques help us to acquire deeper information included in textual data.

Market mispricing occurs when a number of investors behave irrationally, such as following the crowd and simultaneously rushing to the exit. This phenomenon is called 'herding' and provides investors with a rare opportunity to buy at an undervalued price. We present a novel idea to detect whether the market is actually in a herding situation.

First, we create a 10x10 digital picture of the market every day with each pixel representing edge density which is calculated based on the correlation of returns among stocks.

Second, based on a supervised machine learning algorithm with convolutional neural networks (CNNs), we use those daily pictures as input (explanatory variables) to explain whether the market is at a temporary bottom.

Third, using out-of-sample data, we test whether the estimated model correctly predicts the bottom. Our major findings are as follows: 1. There is return predictability in the pictures, and 2. return predictability is more efficiently extracted based on a CNN approach than logistic regression.

Prospects

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The purpose of this study is to assess whether firm-specific estimates of time-varying expected returns derived from the approximate present value identity, given the clean surplus relation, are reliable proxies for true expected returns. We present an extended version of Lyle and Wang's [2015] model and show that firm-level expected returns estimated under the extended model are considerably better at explaining a cross-section of future stock returns when compared to those produced by popular factor models, such as the capital asset pricing model.

Companies that simultaneously abolish shareholder perks and increase dividends earn significantly negative cumulative abnormal returns (CARs) at announcement. CARs are negatively correlated with the yield on perks available to small retail stockholders, whereas neither the yield on perks for institutional stockholders nor that from dividends is significantly correlated with CARs.

These results suggest that the dividend is not a substitute for shareholder perks with the same amount as the dividend.

Book Reviews

SAAJ News