Systematic Disagreement between Human and Machine Predictions

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Abstract

Using a massive volume of firm-level high-dimension panel data, this study constructs a prediction model based on machine learning for corporate default, compares the performance of its predictions with that of professional analysts' judgmental predictions based on both hard and soft information, and identifies the determinants of the disagreements between those two types of predictions. Human predictions perform worse than machine predictions on average. As for predicting the default likelihood of firms with fewer observable information, however, it is more likely that the analysts can outperform the machine. The performance of the analysts' predictions also improves in accordance with changes in their own attributes, such as the duration of job experience. A counterfactual exercise suggests that changing the allocation of prediction tasks to machines and humans with reference to firm characteristics, such as firm size, should help an overall predicting performance improve. A theoretical prediction is verified that soft information collected by experienced analysts should be useful for complementing machine predictions which rely on only hard information.

Keywords: Machine learning; Prediction; Human Prediction; Disagreement
JEL classification: C10, C55, G33

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