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Predicting tax avoidance by means of social network analytics

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Abstract

This study predicts tax avoidance by means of social network analytics. We extend previous literature by being the first to build a predictive model including a larger variation of network features. We construct a network of firms connected through shared board membership. Then, we apply three analytical techniques: logistic regression, decision trees, and random forests; to create five models using either firm characteristics, network characteristics or different combinations of both. A random forest including firm characteristics, network characteristics of firms and network characteristics of board members provides the best performance with a minimal increase of 7 pp in AUC. Hence, including network effects significantly improves the predictive ability of tax avoidance models, implying that board members exhibit specific knowledge which can carry over across firms. We find that having board members with no connections to low-tax companies lowers the

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