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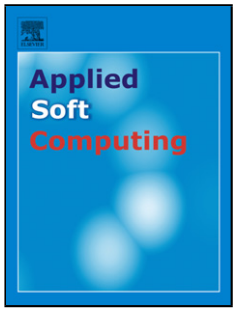

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A cosine similarity based QUALIFLEX approach with hesitant fuzzy linguistic term sets for financial performance evaluation

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Highlights

- A new fuzzy envelope of HFLTS is proposed.
- A new cosine similarity measure for HFLTSs is defined.
- An adjusted cosine similarity measure is developed for HFLTSs.
- A linear programming model is constructed to derive the criteria weights.
- A cosine similarity based QUALIFLEX approach for financial performance evaluation.

Abstract. The financial performance evaluation is important for investors of listed companies to make investment decisions. It enables investors to avoid haphazard investment and make a better decision in the capital market with high risk. Financial performance evaluation can be formulated as a kind of multi-criteria decision making (MCDM) problems with hesitant fuzzy linguistic term sets (HFLTSs). Considering that the number of criteria markedly exceeds the number of alternatives in real-world financial performance evaluation, this paper aims to develop a cosine similarity based QUALIFLEX (QUALItative FLEXible multiple criteria method) approach for MCDM with HFLTSs to effectively solve such problems. Firstly, a new fuzzy envelope of HFLTS is proposed using a Bonferroni mean

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