

Global Business Networks¹

1. What are the research questions?

1. How to **construct** a robust global business network by using textual data.
2. Ensure the **accuracy** of the constructed network.
 - 2.1 Assess the similarity of peer-firms within identical industry/country, with the peers clustered by the paper.
 - 2.2 Calculate and compare pairwise firm overlaps and return correlations across all business networks
 - 2.3 Benchmark testing: 1) word-based network method, and 2) other firm relation datasets (TNIC dataset).
3. Ensure the **effectiveness** of the constructed network, in other words, its applications:
 - 3.1 Testing **lead–lag effect**: long economically-linked stocks and short sparse-linked ones, and we can observe a significant positive alpha.
 - 3.2 Predict target firms in **M&A deals**.
 - 3.3 Detecting the **specific types of relations**, using the same but fine-tuned technique of this paper.

2. Why are the research questions interesting?

1. Directly defining business networks by industry codes has obvious flaws, as they omit potential relations beyond formal classifications, such as cross-industry collaborations, supply chain linkages.
2. Data-driven method using stock returns (similar firms have co-movements) cannot rule out the randomness and cannot detect the pure relations.
3. AI-generated method can obtain a more external and accountable relation, while it's challenging.

3. What is the paper's contribution?

¹ Breitung, Christian, and Sebastian Müller. "Global business networks." Journal of Financial Economics 166 (2025): 104007.

1. Embedding analysis in identifying relations

Prior: Identify competitors (Eisdorfer et al., 2021), gauge competition intensity (Li et al., 2013), and develop time-varying industry classifications (Hoberg and Phillips, 2010, Hoberg and Phillips, 2016).

2. Using AI to streamline information in corporate disclosures

4. What hypotheses are tested in the paper?

If peer-firm relations exist in texts can be detected in a measurable and accountable way, such index could, therefore, explain and predict cross-company effects in the financial market, for example lead-lag effect and M&A behaviors.

5. Comment on the appropriateness of the sample selection procedures

US and global firms – that's a great amount of work.

6. Comment on the appropriateness of variable definition and measurement

Accountable and measurable

7. Appropriateness of regression model specification

For the model, two things I feel interested in: 1) Using masks for company identifiers to rule out look-ahead bias of LLMs. 2) Use LLM to summarize the description, instead of using the whole texts, which is very useful in text similarity comparison with the vectors generated via embedding by Transformers.

8. What difficulties arise in drawing inferences from empirical work?

Empirical inference is actually not the key point of this paper, the three empirical analysis follow the previous methods in literature.

9. Describe at least one feasible extension of this research?

Can be used in more text sources.

10. What links exist among these papers?

Both of them focus on detecting relations.