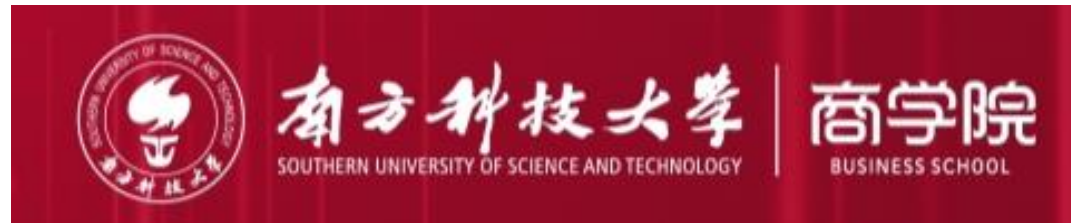# 2023 Global Corporate Governance Colloquium (GCGC)

Supply Chain Risk: Changes in Supplier Composition and Vertical Integration – By Ersahin, Giannetti, and Huang (2022)

Discussed by Albert Tsang
2023-06-17

What is *X* and *Y* in this study?

- <mark>*X1*</mark>= *SCRisk*
  - firm-level supply chain risk measure constructed from 8K fillings;
  - capturing uncertainty and fear of future supply chain shock;
  - first moment of supply chain shock

- <mark>*X2*</mark>= *SCSentiment*
  - firm-level supply chain measure constructed from 8K fillings;
  - capturing negative realizations of supply chain shocks;
  - second moment of supply chain shock;

What is *X* and *Y* in this study?

- **Y1** =
  - *realized stock price volatility*
  - *30-day average abnormal return*
- **Y2** =
  - *number of suppliers*
  - *number of suppliers in the same continent*
  - *number of suppliers in different continents*
  - *number of US suppliers*
  - *number of industry leader suppliers*
- **Y3** =
  - *M&A with supplier*
  - *M&A with customer*
  - *Unrelated M&As*
- **Y4** =
  - *CAR [-1, =1] to M&A announcements*

What the relationship between *X* and *Y*?

- *X & Y1 is positive*
  - *realized stock price volatility*
  - *30-day average abnormal return*
- *X& Y2 is positive*
  - *number of suppliers*
  - *number of suppliers in the same continent*
  - *number of suppliers in different continents*
  - *number of US suppliers*
  - *number of industry leader suppliers*
- *X&Y3 is positive*
  - *M&A with supplier*
  - *M&A with customer*
  - *Unrelated M&As*
- *X&Y4 is negative*
  - *CAR [-1, =1] to M&A announcements*

Strength of the paper

- *Supply chain risk is very difficult to be quantified because of various channels*

- *Using textual analysis of earnings conference calls, the paper creates a novel measure of supply chain risk*

- *Based on 194,561 conference call transcript from 5,723 public firms listed in the US from 2002-2020*

Table 2. Top 100 bigrams and their weights

This table reports the 100 bigrams with the highest frequency in the training library used for the construction of SCRisk. The weight column reports the number of occurrences of the bigram across all earning calls filings.

Bigram	Weight	Bigram	Weight	Bigram	Weight
supply_chain	761.63	third_party	52.66	of_scale	31.34
the_supply	281.15	demand_and	52.66	supply_and	30.03
a_supply	146.23	given_by	52.66	demand_during	30.03
safety_inventory	143.19	cycle_inventory	50.49	if_demand	30.03
the_retailer	133.18	mean_of	50.05	the_aggregate	29.59
of_demand	104.89	size_of	47.44	to_improve	29.59
the_manufacturer	104.89	the_season	45.26	fill_rate	29.16
the_optimal	100.97	the_quantity	44.83	the_lot	29.16
lead_time	98.79	chain_surplus	42.22	chain_is	28.72

Strength of the paper

- *Validating the measure by several ways (by industry, by time, etc)*
- *Adding to the literature which employs textual analysis in measuring geopolitical risk, climate risk, cyber risk, and competition pressure etc*

Strength of the paper

- *Very very comprehensive analyses*
  - *Total 14 tables + 8 additional tables + several charts*

- *The paper finds that*
  - *Supply chain risks affects stock return and also firm operations (the choices of suppliers and the decision of vertical integration)*

Strength of the paper

- *The paper is very well-written*
  - *The conclusion is believable and intuitive*
  - That is, supply chain risk is a real risk factor, and firms with such risks tend to diversify their suppliers and also tend to do more vertical integration if they are finically capable.

Comments and Suggestions

- *While it is very informative to include more analyses, the paper is lengthy and read like a PhD thesis work*
  - *Total 79 pages, with many Ys, Tables and Charts*

- *A trade off between comprehensiveness and focus would be a challenge*

Comments and Suggestions

- *Why would we need to have two supply chain risk measures?*

- *Are they inverse measures to each other or are they different fundamentally?*

- *Perhaps more clearly distinguish SC Risk and SC Sentiment would help improve the focus of the paper as well.*

Comments and Suggestions

- *What would be the key objective of the study?*
  - *To create a novel measure of supply chain risk?*
  - *To examine whether and how supply chain risk affect stock return?*
  - *To examine whether and how supply chain risk and sentiment complementary to each other?*
  - *To examine firms' strategic changes when they are facing with such risk?*

Comments and Suggestions

- *Possible reverse causality?*

	(1) Number of suppliers	(2) Number of suppliers in the same continent	(3) Number of U.S. suppliers	(4) Number of suppliers in different continents	(5) Number of industry leader suppliers	(6) Number of suppliers	(7) Number of suppliers in the same continent	(8) Number of U.S. suppliers	(9) Number of suppliers in different continents	(10) Number of industry leader suppliers
					Panel A: OLS regressions					
SCRisk	0.0164**	0.0127***	0.0125***	0.0061	0.0059*	0.0162**	0.0126***	0.0123***	0.0060	0.0058*
	(0.0072)	(0.0040)	(0.0038)	(0.0051)	(0.0032)	(0.0072)	(0.0041)	(0.0038)	(0.0051)	(0.0032)
SCSentiment						0.0011	0.0009**	0.0010**	0.0001	0.0005
						(0.0008)	(0.0004)	(0.0004)	(0.0005)	(0.0003)
Size	2.1992***	1.1972***	1.1245***	0.6366***	1.1383***	2.1978***	1.1962***	1.1234***	0.6365***	1.1376***
	(0.2435)	(0.1241)	(0.1150)	(0.1611)	(0.1069)	(0.2434)	(0.1239)	(0.1146)	(0.1610)	(0.1068)
Tobin's Q	0.0770	-0.0236	0.0196	0.0225	0.0361	0.0768	-0.0237	0.0194	0.0225	0.0360
	(0.0718)	(0.0353)	(0.0322)	(0.0407)	(0.0295)	(0.0718)	(0.0353)	(0.0322)	(0.0407)	(0.0295)
Cash holdings	0.1135	-0.6710*	-0.6507*	0.5100	-0.6490**	0.1171	-0.6682*	-0.6476*	0.5104	-0.6473**
	(0.6458)	(0.3654)	(0.3389)	(0.4024)	(0.2992)	(0.6457)	(0.3651)	(0.3385)	(0.4024)	(0.2990)
Cash flow	-2.0341***	-1.1455***	-1.1182***	-0.8608***	-1.0460***	-2.0413***	-1.1510***	-1.1244***	-0.8615***	-1.0495***
	(0.3872)	(0.2331)	(0.2172)	(0.2450)	(0.1768)	(0.3868)	(0.2330)	(0.2171)	(0.2451)	(0.1768)
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry x year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	23,804	23,804	23,804	23,804	23,804	23,804	23,804	23,804	23,804	23,804
Adjusted R-squared	0.8246	0.7534	0.7589	0.6076	0.8261	0.8247	0.7535	0.7590	0.6076	0.8261

Comments and Suggestions

- *Can Covid-19 (or other major global event) be an exogenous shock in examining the change of suppliers post an increased supply chain risk?*

- *With much bigger costs in creating such a measure, does it offer a competitive advantage in measuring supply chain risks over some low cost measures (such as number of suppliers, size of supplier, or country origin of foreign suppliers)?*

Overall, this is a very interesting and well-written paper!