

Global Supply Chain Risk Report

Brought to you by Cranfield School of Management and Dun & Bradstreet

Q1 2018



STORY OF THE QUARTER: INCREASED RISK EXPOSURE FOR MANUFACTURING, TRANSPORTATION AND WHOLESALE

The first quarter of 2018 was a period of change in terms of supplier criticality and global sourcing risk:

- **Supplier Criticality** increased 3% over the quarter and 10% over the last two quarters;
- **Supplier Financial Risk** remained the same;
- **Global Sourcing Risk** increased 10% over the quarter; and
- **Foreign Exchange Risk** remained the same.

While there appears to be stability in two of the metrics, the results indicate significant differences across sectors:

- The **Construction** sector has reduced its supply chain risk exposure with fewer critical suppliers, suppliers located in less risky countries, and reductions in Supplier Financial Risk and Foreign Exchange Risk.
- The **Manufacturing** sector has also experienced a reduction in risk exposure with fewer critical suppliers and stability in Financial Risk and Foreign Exchange; however, Manufacturing Global Sourcing Risk has increased by 12%, indicating a greater exposure to high-risk countries and fluctuations in the global market place (possibly due to continued outsourcing and offshoring to low-cost economies).
- The **Retail** sector has experienced little change in all four risk metrics, indicating a quarter of stability in risk exposure for this sector.
- The **Transportation** sector has seen the biggest increase in risk exposure of the five sectors, with an increase in all four risk metrics. Supplier Criticality has increased by 20% through Q1, compounding increases in the previous quarter to give a 62% increase since beginning of October 2017. Similarly, Global Sourcing Risk has also increased significantly – by 18% over the last quarter – giving a 32% increase since October 2017. Further, Foreign Exchange risk has continued to increase. Increases in all four risk metrics suggests that this sector might benefit from more systematic risk assessment in supplier selection.
- The **Wholesale** sector enjoyed stability in Supplier Criticality and Financial Risk but significant increases in both Global Sourcing and Foreign Exchange Risk, implying an increased exposure to global market fluctuations.

This shows that supply chain risks are sector specific, making management practices difficult to export across industries.



This Global Supply Chain Risk Report is a joint publication by Cranfield School of Management and Dun & Bradstreet. Experts from Cranfield's Centre for Logistics and Supply Chain Management have analysed Dun & Bradstreet's transaction and risk data to create this report, which investigates actual supply chain risks faced by European companies with international footprints.

The report responds to a growing need for reliable information to support supply chain decisions, within an increasingly complex and dynamic business environment. The aim of the report is to provide decision-makers with a source of robust evidence and analysis concerning supply chain risks. To do so, we rely on a database of around 600,000 anonymised transactions every quarter between European buyers and suppliers located in more than 150 countries. This allows us to provide a comprehensive picture of global supply chain risks.

The report is broken down into two sections:

1. **Sectoral Risk Analysis:** a comparison by industry sector of four key metrics: Supplier Criticality, Supplier Financial Risk, Global Sourcing Risk, and Foreign Exchange Risk.
2. **Supply Chain Risk Grid:** a chart providing a comprehensive overview of risk exposure.

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Cranfield School of Management is one of the oldest and most prestigious business schools in the UK. The Cranfield Centre for Logistics and Supply Chain Management, part of the School of Management, is Europe's largest grouping of faculty specialising in the management of logistics and supply chains. As a major centre of excellence, it has come to be recognised as Europe's leading centre for advanced research and teaching in these important fields. Cranfield's Logistics and Supply Chain Management MSc programme is ranked first outside the US and 11th worldwide in the Supply Chain Management World "University 100" annual survey 2016.¹

¹ <http://www.scmworld.com/top-supply-chain-universities-question-reputation/?nabe=4527655900938240:1>



SECTION 1: SECTORAL RISK ANALYSIS

The Supply Chain Risk Overview presents four headline metrics, providing different perspectives on the most relevant areas of supply chain risk:

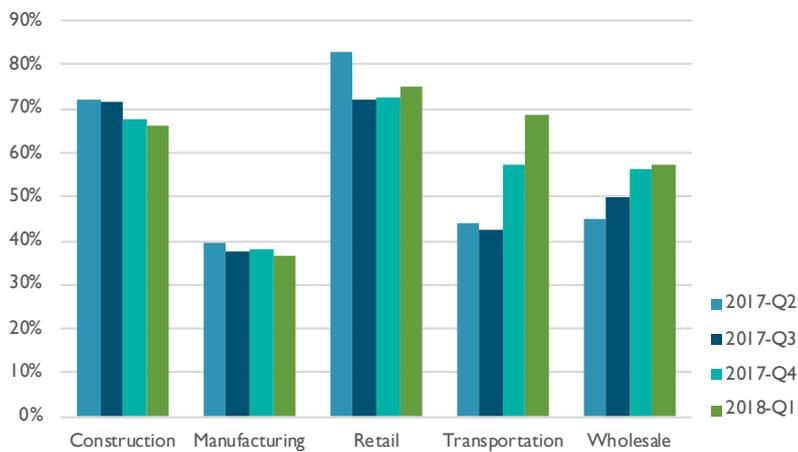
- Supplier Criticality
- Supplier Financial Risk
- Global Sourcing Risk
- Foreign Exchange Risk

These headline metrics are also broken out to show supply chain risks by industry sector. Overall, no sector appears to have a particularly risky profile, although there are clear differences in the risks they are exposed to, and it is likely that the strategies required for managing risk need to be different too. This analysis provides an industry-specific benchmark, which can help managers identify the critical risk in their sectors and compare their own performance against industry norms.

SUPPLIER CRITICALITY 47.8% ↑

The Supplier Criticality score represents the proportion of buyer-supplier relationships where the supplier is considered critical or key by the buyer company. This indicates a company's perceived degree of dependency on its suppliers.

Currently, Supplier Criticality stands at 47.8%, compared to 46.4% at the beginning of the quarter (January 2018). Combined with the 6.7% increase in Q4 2017, this continuing increase shows that buyers feel slightly more dependent on their suppliers, which might suggest a trend towards partnership relationships rather than transactional ones. In turn, this indicates an increased exposure to risk.



As in Q4 2017, Supplier Criticality appears to be highest in the Retail sector (75.2%) and has increased from 72.4% since Q4 2017. Manufacturing still has the lowest score (36.6%), which is a further decrease from 38.1% in the previous quarter.

This means that companies in the Retail industry consider most of their buyer-supplier relationships to be with suppliers that are critical or key, indicating significant supplier dependency. Conversely, the Manufacturing sector appears less dependent on individual suppliers, probably because companies tend to have a wider pool of suppliers.

In the meantime, the Transportation sector has seen a 20% increase in Supplier Criticality through Q1 2018, compounding increases in the previous quarter to give a 62% increase since beginning of October 2017. This suggests a much greater dependency and exposure to risk, which could be due to supply base consolidation or increased volatility in the supply market.

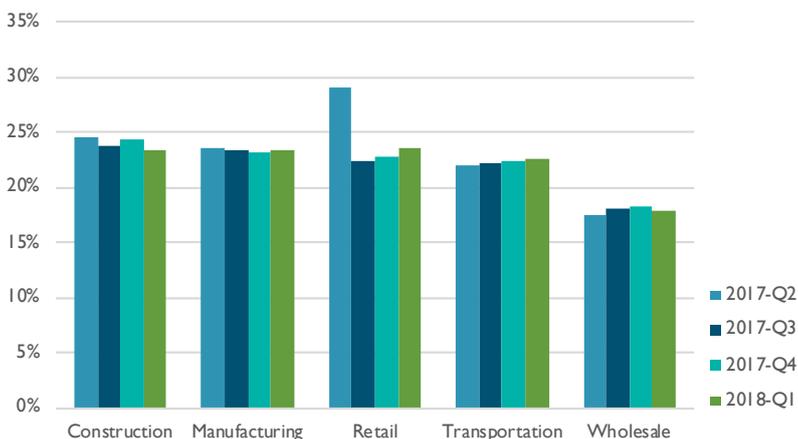
IMAGE 1: SECTORAL ANALYSIS ON SUPPLIER CRITICALITY

Note: Between June and July 2017 there was a change in the dataset for retail companies, which shows as a step change between Q2 and Q3.

FINANCIAL RISK 23% ▬

Supplier Financial Risk refers to the percentage of buyer-supplier relationships where the supplier has a high or very high financial risk score, according to Dun & Bradstreet ratings.

The current score of 23% shows no change from the previous quarter.



Financial Risk is highest in Retail (23.6%), and this has increased by 3% through Q1. Combined with the 4% increase in Supplier Criticality, this indicates a marked increase in exposure to risk.

Similarly, Transportation has seen a small increase in Financial Risk (1% over Q1) – but, combined with a dramatic increase in Supplier Criticality over the last two quarters, exposure to risk is high.

On the other hand, results for the Wholesale sector indicate only 18% of buyer-supplier relationships are with suppliers that have high Financial Risk. This shows that suppliers tend to be financially stable, mitigating risk exposure.

IMAGE 2: SECTORAL ANALYSIS ON FINANCIAL RISK

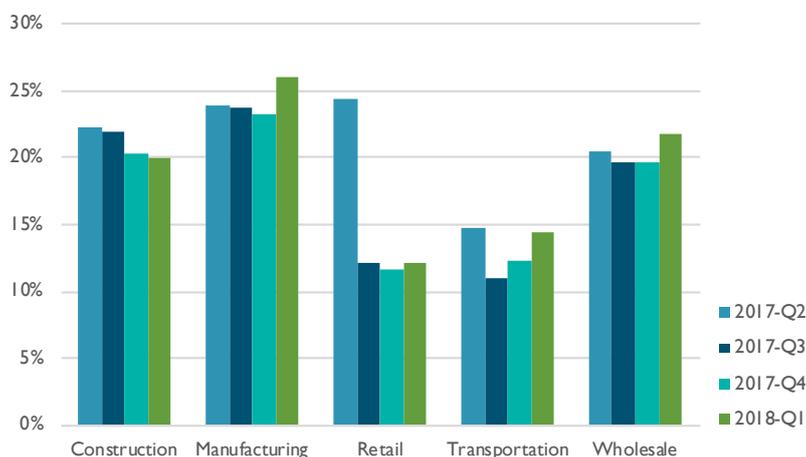
Note: Between June and July 2017 there was a change in the dataset for retail companies, which shows as a step change between Q2 and Q3.

GLOBAL SOURCING RISK 22.8% ↑

Global Sourcing Risk represents the percentage of buyer-supplier relationships where the supplier is located in a country with a Country Risk higher than 4, as assessed by Dun & Bradstreet.

Dun & Bradstreet's Country Risk Indicator is a composite index encapsulating the risk posed by country-wide factors on the predictability of export payments and investment returns. It ranges between 1 and 7, where higher values of the index suggest higher risk.

Currently, the Global Sourcing Risk indicator stands at 22.8%, up from 20.6% in the previous quarter, representing a considerable 10% increase. This is due to significant increases in Global Sourcing Risk in the Manufacturing, Transportation, and Wholesale sectors.



Global Sourcing Risk shows all sectors having indicator values below 30%, which means they have relatively low exposure in high-risk countries.

Manufacturing and Wholesale have values above 20%. This indicates they are more exposed to fluctuations in the global marketplace than the other sectors. This could be due to outsourcing and offshoring to low-cost economies which can be associated with higher Country Risk.

In contrast, the Retail and Transportation sectors have the lowest scores, as they tend to use a higher proportion of national or regional suppliers.

However, it is interesting to note that Transportation has seen an 18% increase in Global Sourcing Risk over Q1 and a 32% increase over the last two quarters. This, combined with the increase in Financial Risk and dramatic increase in Supplier Criticality, indicates an overall increase in exposure to risk.

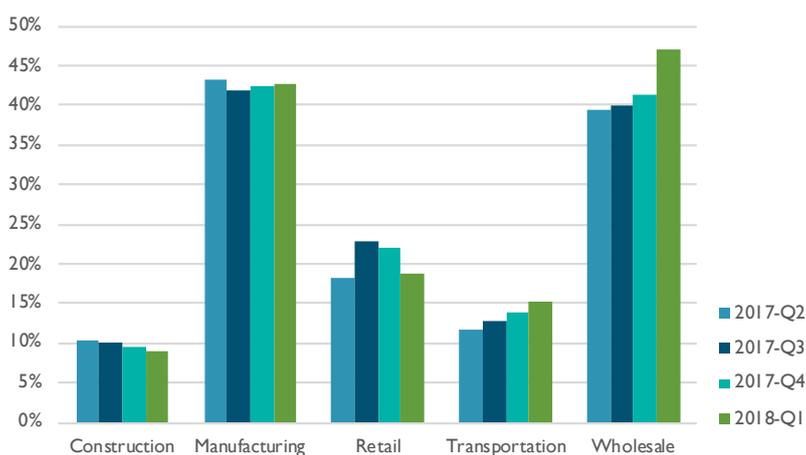
IMAGE 3: SECTORIAL ANALYSIS ON GLOBAL SOURCING RISK

Note: Between June and July 2017 there was a change in the dataset for retail companies, which shows as a step change between Q2 and Q3.

FOREIGN EXCHANGE RISK (FX RISK) 33.6% ↓

Foreign Exchange Risk represents the percentage of buyer-supplier relationships where the transaction is between different currencies.

The data indicates that 33.6% of the transactions have FX risk, compared to 33.7% in the previous quarter. The majority of these involve relatively stable currencies such as the Euro (EUR), British pound (GBP), Swedish krona (SEK), and US dollar (USD).



Foreign Exchange Risk is highest in the Wholesale sector at 47.1%, after a 14% increase through Q1. This could be explained by increased sourcing from offshore suppliers in low-cost economies. By contrast, Construction has the lowest Foreign Exchange Risk of 9.1%, explained by the predominant sourcing from domestic suppliers.

Transportation also has a low (although steadily increasing) Foreign Exchange Risk but an increasing Supplier Criticality and Global Sourcing Risk. Supplier Financial Risk also remains high in the sector. This suggests that companies in the Transportation industry might benefit from more systematic risk assessment in supplier selection.

IMAGE 4: SECTORIAL ANALYSIS ON FOREIGN EXCHANGE RISK

Note: Between June and July 2017 there was a change in the dataset for retail companies, which shows as a step change between Q2 and Q3.



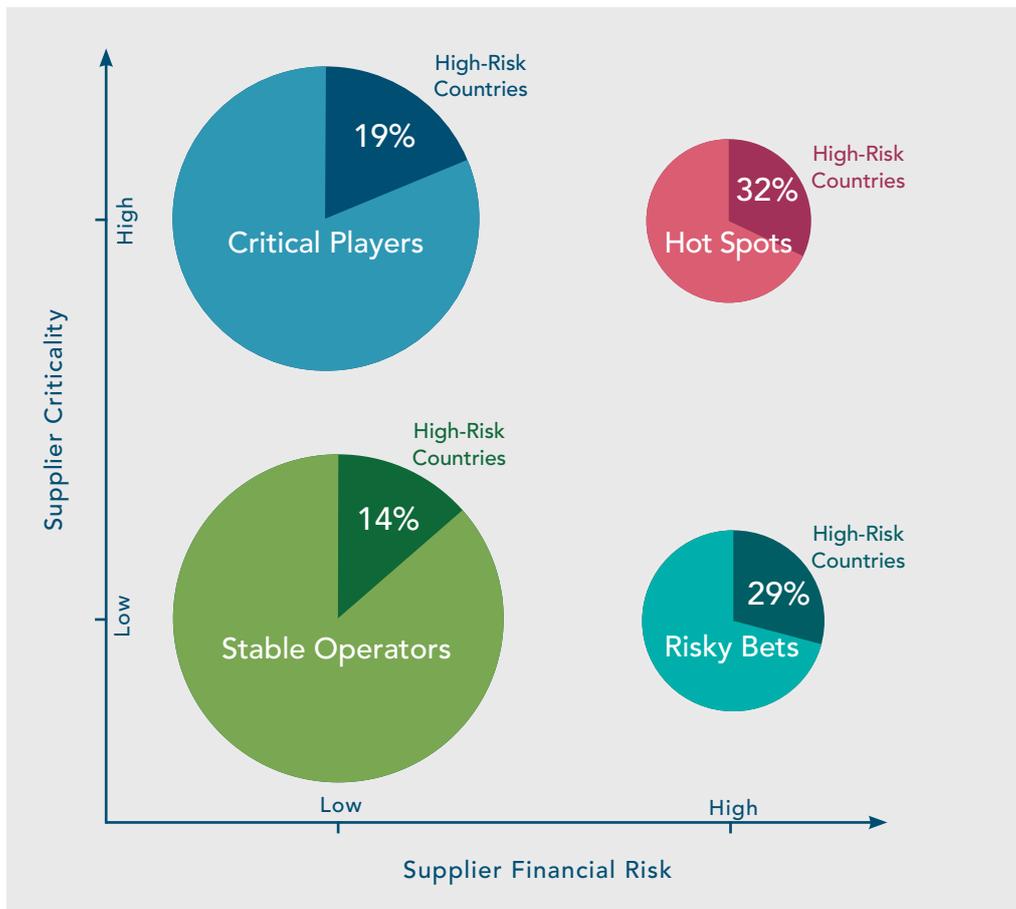
SECTION 2: SUPPLY CHAIN RISK GRID

The Supply Chain Risk Grid combines three indicators in a chart to provide a comprehensive overview of risk exposure. Four quadrants categorise the buyer–supplier relationship by Supplier Criticality and Supplier Financial Risk. In addition, a pie chart in each quadrant shows the percentage of suppliers in high-risk countries.

It can be useful for a company to consider the proportions of its own specific buyer–supplier relationships located in each of the quadrants, in order to understand its own exposure to risk and the implications for risk management.

- **Hot Spots:** The top-right quadrant includes buyer–supplier relationships with high Supplier Criticality and high Financial Risk. Overall, 8% of relationships found in our data are included here, of which nearly a third (32%) have high country risk (vs 28% last quarter). Suppliers in this top corner are a concern and should be the focus of attention.
- **Critical Players:** The top-left quadrant includes buyer–supplier relationships with critical suppliers but low financial risk. Overall, 29% of relationships are included in this quadrant (vs 28% last quarter), and of these, only 19% are in high-risk countries (vs 18% in Q4 2017).
- **Risky Bets:** The bottom-right corner shows buyer–supplier relationships with non-critical suppliers but high financial risk, which includes 10% of all relationships. This includes the second-highest proportion (29%) in high-risk countries (vs 26% last quarter).
- **Stable Operators:** The low-criticality, low-financial-risk quadrant (bottom-left) is the safest quadrant and includes the highest proportion of relationships (32%) (vs 33% in Q4 2017). In only 14% of these are the vendors in a high-risk country (vs 12% last quarter).

SUPPLY CHAIN RISK GRID²



² The Supply Chain Risk Grid uses a subset of the core data set, where the data for all three ratings (criticality, financial risk and country risk) measures are complete.

GLOSSARY AND METHODOLOGY

Supplier Criticality: The percentage of unique buyer–supplier relationships where the buyer categorises the supplier as critical or key. A larger number represents a greater perceived exposure to risks from the supply base.

Supplier Financial Risk: The percentage of unique buyer–supplier relationships where the supplier has a Risk Rating of 3 or 4 (higher-than-average risk or high risk) according to Dun & Bradstreet financial risk scales. This provides an overall indicator of risk from suppliers.

Global Sourcing Risk: The percentage of unique buyer–supplier relationships where the supplier is located in a country with Country Risk higher than 4 using the Dun & Bradstreet Country Risk scale, which ranks countries from 1 to 7 in terms of risk, where 1 is the lowest risk and 7 the highest.

Foreign Exchange Risk: The percentage of unique buyer–supplier relationships where the buyer’s currency in the transaction is different from the supplier’s currency. A higher percentage indicates higher exposure to foreign exchange fluctuations.

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DATA

Dun & Bradstreet data for Q1 2018 included 74,940 buyer–supplier relationships, which informed the calculation of Supply Chain Risk indices: Supplier Criticality, Financial Risk, Global Sourcing Risk, and Foreign Exchange Risk. The number of relationships in each sector was as follows:

Construction – 7,870 unique relationships

Manufacturing – 47,928 unique relationships

Retail – 3,422 unique relationships

Transportation – 12,143 unique relationships

Wholesale – 3,267 unique relationships

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This report was published in June 2018.

GUIDANCE ON USE

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