Global Supply Chain Risk Report

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

Q3 2019

KEY STORY OF THE QUARTER

The third quarter of 2019 was a period of change for all four metrics investigated at the macro level (Supplier Criticality, Supplier Financial Risk, Global Sourcing Risk, and Foreign Exchange Risk), with Supplier Criticality and Global Sourcing Risk showing marked increases as discussed below. Of the economic sectors analysed, manufacturing and retail showed increase risk, while most of the other sectors (construction, infrastructure, wholesale, finance, and services) enjoyed relatively stable risk levels. The dataset we base our indices on comprises 178,384 transactions. The metrics we report are always calculated four quarters back, showing the progression of these metrics over the past year for all sectors.

Key stories by risk metric:

- **Supplier Criticality** increased slightly (by 2%), and it is 1.2% higher than three quarters ago (at the end of December 2018). This shows that there has been a marked increase compared to Q2 and that companies now classify a larger proportion of their suppliers as critical or key, indicating a higher level of dependency on their suppliers. The increase in Supplier Criticality has been driven by the construction, manufacturing, infrastructure and retail sectors (with all but manufacturing sitting above 70%). The increases in those sectors suggest supply pressures due to high demand or consolidated suppliers.
- **Global Sourcing Risk** increased by 4.8% during Q3, driven by increased risk in the manufacturing and retail sectors, and it indicates an increased propensity to offshore to high-risk countries (which are often low-cost economies). Global Sourcing Risk is now back up to the level seen at the end of December 2018.

Key stories by industry sector:

- **The manufacturing sector** experienced significant third-quarter increases in all four risk metrics: Supplier Criticality (up 6.7%), Financial Risk (up 2.1%), Global Sourcing Risk (up 10.6%), and Foreign Exchange Risk (up 4.6%). This suggests that there's been an increase in sourcing from high-risk countries (e.g., offshoring manufacturing to low-cost economies) and a concurrent increase in perceived dependency on suppliers, which are in general exhibiting higher financial risk and thus a higher probability of going insolvent.
- **The retail sector** has seen increases in Supplier Criticality and Global Sourcing Risk of 5.4% and 2.7% respectively. The former has exacerbated the already high level of Supplier Criticality in retail, which remains the highest of all seven sectors at 89%, showing a sustained perception of high dependence on suppliers. At the same time, the increase in Global Sourcing Risk indicates an increase in sourcing from high-risk countries, which are often low-cost economies and therefore attractive to retail in its drive to reduce purchasing costs.

RISK METRIC AND SECTOR OVERVIEW

Summarised changes for the metrics not featured in the key story section:

- **Supplier Financial Risk** has reduced slightly to 19.7% during third quarter, continuing a reducing trend over the last three quarters of 3.6%. Last quarter's reduction has been driven by reductions in Financial Risk for all sectors except for manufacturing, indicating a reduced probability of insolvency in the supplier base.
- **Foreign Exchange Risk** increased slightly by 1% during Q3 but reduced 1.1% over the last three quarters. The third-quarter increase has been driven by increases in the manufacturing and infrastructure sectors, indicating that a higher proportion of their transactions are in different currencies. Buying companies may be increasing offshoring somewhat, as is indicated by the large increase in Global Sourcing Risk for manufacturing. Alternatively, buying companies may wish to pay suppliers in the buyer's own currency (possibly to exploit currency exchange fluctuations such as the GBP/EUR exchange rate).

Summarised changes for the individual sectors:

- **The construction sector** experienced a 3.4% Q3 reduction in Financial Risk but a 1.5% increase in Supplier Criticality, which now sits at (a very high) 84% of relationships being reported as critical or key, showing a high perception of dependence on suppliers. Indeed, only the retail sector has a higher level of Supplier Criticality. Both Global Sourcing Risk and Foreign Exchange Risk remained exceptionally low, because the majority of the suppliers are located in Europe (if not in the buyer's country), where country risk ratings tend to be low and the transaction currency is euros.
- **The infrastructure sector** – which comprises companies in transportation, communications, electricity, gas, and sanitary services – saw Q3 increases in Supplier Criticality of 6.7%. Infrastructure continues to have the third-highest Supplier Criticality score of the seven sectors, at 76%. Foreign Exchange Risk continued its increasing trend, rising 6.7% during the last quarter and 35.1% over the last three quarters. This rise may be because buying companies in this sector are increasingly sourcing from other countries or are wishing to pay suppliers in the buyer's own currency (possibly to exploit currency exchange fluctuations such as the GBP/EUR exchange rate).

RISK METRIC AND SECTOR OVERVIEW (CONT.)

- **The wholesale sector** is showing a significant 7.4% reduction in Financial Risk during the last quarter, while other risk metrics have remained quite stable. This indicates that suppliers are becoming more financial stable, possibly due to a more cautious approach to procurement.
- **The finance sector** has seen no significant change in any of the four risk metrics during Q3, consolidating the downward trend in its risk profile over the last three quarters.
- **The services sector** has enjoyed a reduction in all four risk metrics during the third quarter: a marked reduction of 11.6% in Global Sourcing Risk and between 3% and 4% in the other metrics. This suggests a more cautious approach to purchasing and, in particular, a reduced tendency to source from suppliers in high-risk countries.

These results show that supply chain risks are sector specific, making management practices difficult to export across industries. What can be meaningful is tracking the progression of these indices and considering action as they change.

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 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 178,384 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. **Nevertheless, we should keep in mind the scope of the dataset: These thousands of transactions belong to companies that use Dun & Bradstreet. Although we report a large number of transactions, this figure is still a small proportion of all transactions that occur within a given sector.**

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 overall risk exposure and sector-specific 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 SCM 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 perspectives on four 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 44.6% ↑

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 44.6%, a 2% increase from its score at the end of Q2 (43.7%).

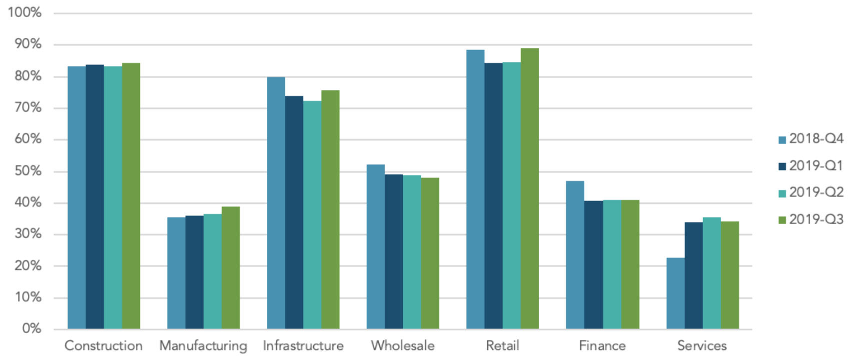


IMAGE 1: SECTORAL ANALYSIS ON SUPPLIER CRITICALITY

Supplier Criticality is highest in the retail sector (89%) and has increased by 5.4% during third quarter. This means that companies in the retail sector consider the vast majority of their buyer–supplier relationships to be with suppliers that are critical or key, indicating significant supplier dependency and exposure to risk. Conversely, the services sector has the lowest score (34.3%), possibly because services companies tend to have a wider pool of suppliers to select from.

Construction, manufacturing and infrastructure have also experienced Supplier Criticality increases during Q3 (1.5%, 6.7%, and 4.6%, respectively), suggesting buying companies feel more dependent on their suppliers. This could be due to increased demand or consolidation in the supplier market.

FINANCIAL RISK 19.7% ↓

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. When calculating Supplier Financial Risk, we consider only transactions where the supplier has a financial risk rating.

The overall current score is at 19.7%, showing a modest 0.9% reduction since the end of Q2 2019.

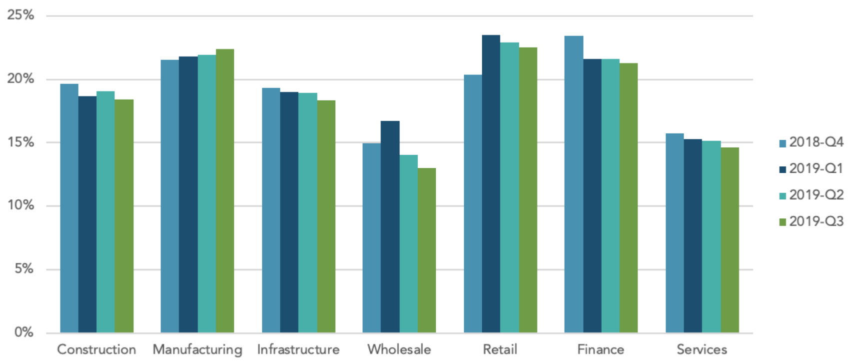


IMAGE 2: SECTORAL ANALYSIS ON FINANCIAL RISK

Supplier Financial Risk is highest in retail (22.5%), but it did go down by 1.6% in that sector during third quarter. This shows that retail suppliers' financial stability has improved slightly, and there is a reduced risk of insolvency. On the other hand, the manufacturing sector has experienced an increase of 2.1%, bringing it to almost the same high level faced by retail and indicating a reduction in the financial stability of manufacturing suppliers. The Financial Risk increase for manufacturing is possibly driven by a marked increase in sourcing from high-risk countries (which indicted by the increase in Global Sourcing Risk; see below).

All other sectors have seen a reduction in Financial Risk, indicating that overall suppliers' financial stability has improved and risk of insolvency is reduced. In particular, the Supplier Financial Risk for the wholesale sector remains the lowest of all sectors at 13% (reduced by 7.4%).

GLOBAL SOURCING RISK 7% ⬆

Global Sourcing Risk represents the percentage of buyer–supplier relationships where the supplier is in a country with a Country Risk higher than or equal to 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 7%, having increased from 6.7% since Q2 2019 (a 4.8% increase). .

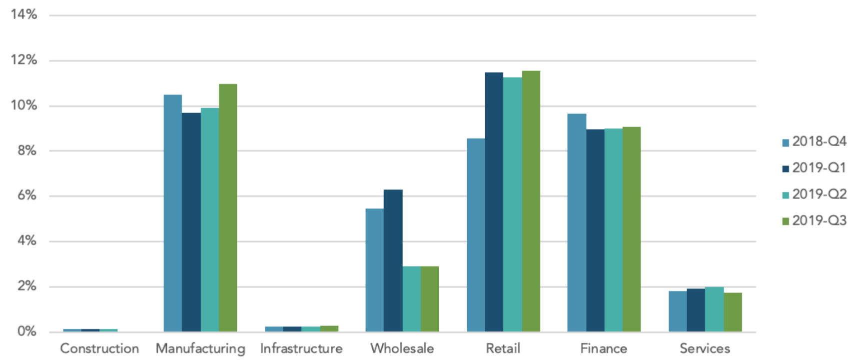


IMAGE 3: SECTORAL ANALYSIS ON GLOBAL SOURCING RISK

Global Sourcing Risk is below 12% for all sectors, which means they all have relatively low exposure to suppliers in high-risk countries. But manufacturing, retail and finance have values above 8%, indicating that a higher proportion of their suppliers are in high-risk countries, and therefore they are potentially more exposed than the other sectors to the multitude of risks posed – and to fluctuations in the global marketplace. Further, all three of these sectors have experienced an increase in Global Sourcing Risk over the last quarter, with manufacturing seeing the largest (10.6%). This indicates an increasing propensity to source from low-cost, high-risk countries.

The construction and infrastructure sectors have extremely low Global Sourcing Risk (less than 0.3%), because the majority of their suppliers are located in Europe (if not in the buyer's own country), where country risk ratings tend to be low.

FOREIGN EXCHANGE RISK (FX RISK) 28.9% ⬆

Foreign Exchange Risk represents the percentage of buyer–supplier relationships where the transactions are between different currencies. Many of the currencies involved are relatively stable, such as the Euro (EUR), British pound (GBP), Swedish krona (SEK), and US dollar (USD).

The data indicates that at the end of the third quarter, 28.9% of the transactions between buyers and suppliers were exposed to FX Risk, a 1.0% increase from the 28.6% exposure at the end of Q2.

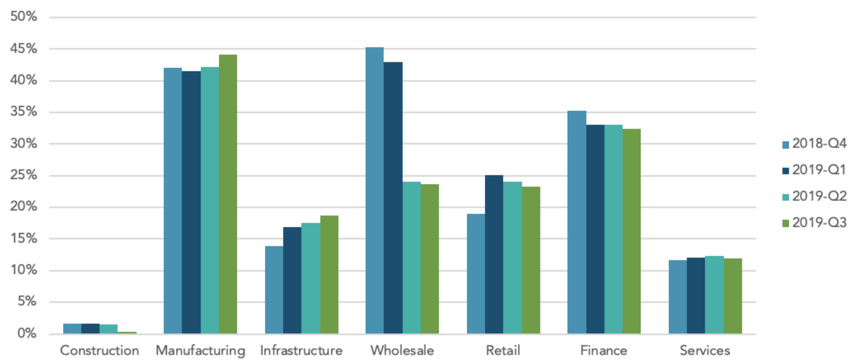


IMAGE 4: SECTORAL ANALYSIS ON FOREIGN EXCHANGE RISK

Foreign Exchange Risk is highest in the manufacturing sector, at 44.1%, after an increase of 4.6% during third quarter. This could be partially explained by the high and increasing level of offshoring in this sector, coupled with the marked third-quarter increase in manufacturing's Global Sourcing Risk.

The infrastructure sector has seen a marked increase of 6.7% in FX Risk during third quarter, continuing an upward trend. This indicates that an increasing proportion of their transactions are in different currencies. This could be explained by buying companies wishing to pay suppliers in the buyers' own currency, exploiting currency exchange fluctuations such as the GBP/EUR exchange rate.

Finally, construction is experiencing a very low 0.4% Foreign Exchange Risk, which is enabled by the tendency in this sector to source from domestic suppliers.

SECTION 2: SUPPLY CHAIN RISK GRID

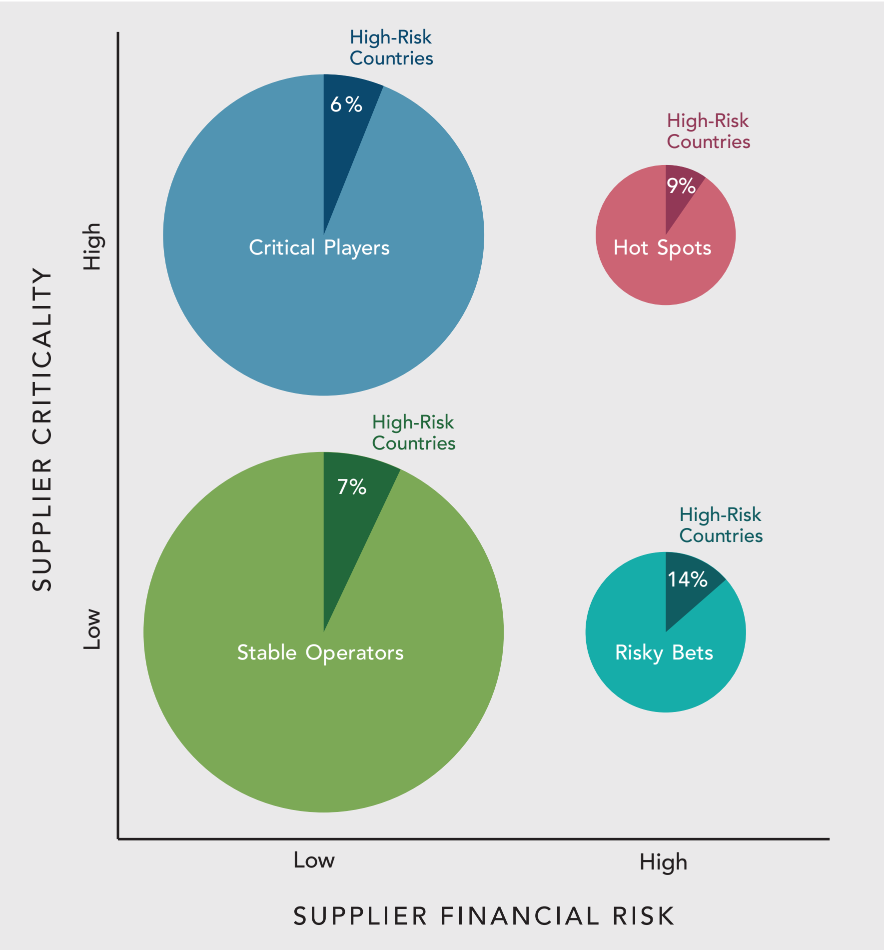
The Supply Chain Risk Grid combines three indicators in a chart to provide a comprehensive overview of risk exposure.

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 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, 11,682 relationships in the data are included here, of which over 9% have high country risk. 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, 67,714 relationships are included in this quadrant, and of these, only 6% are in high-risk countries.
- Risky Bets: The bottom-right corner shows buyer–supplier relationships with non-critical suppliers but high financial risk, which includes 15,904 of all relationships. This quadrant includes the highest proportion (14%) of suppliers in high-risk countries.
- Stable Operators: The low-criticality, low-financial-risk quadrant (bottom left) is the safest quadrant and includes the highest number of relationships (82,704). In 7% of these relationships the suppliers are in a high-risk country.

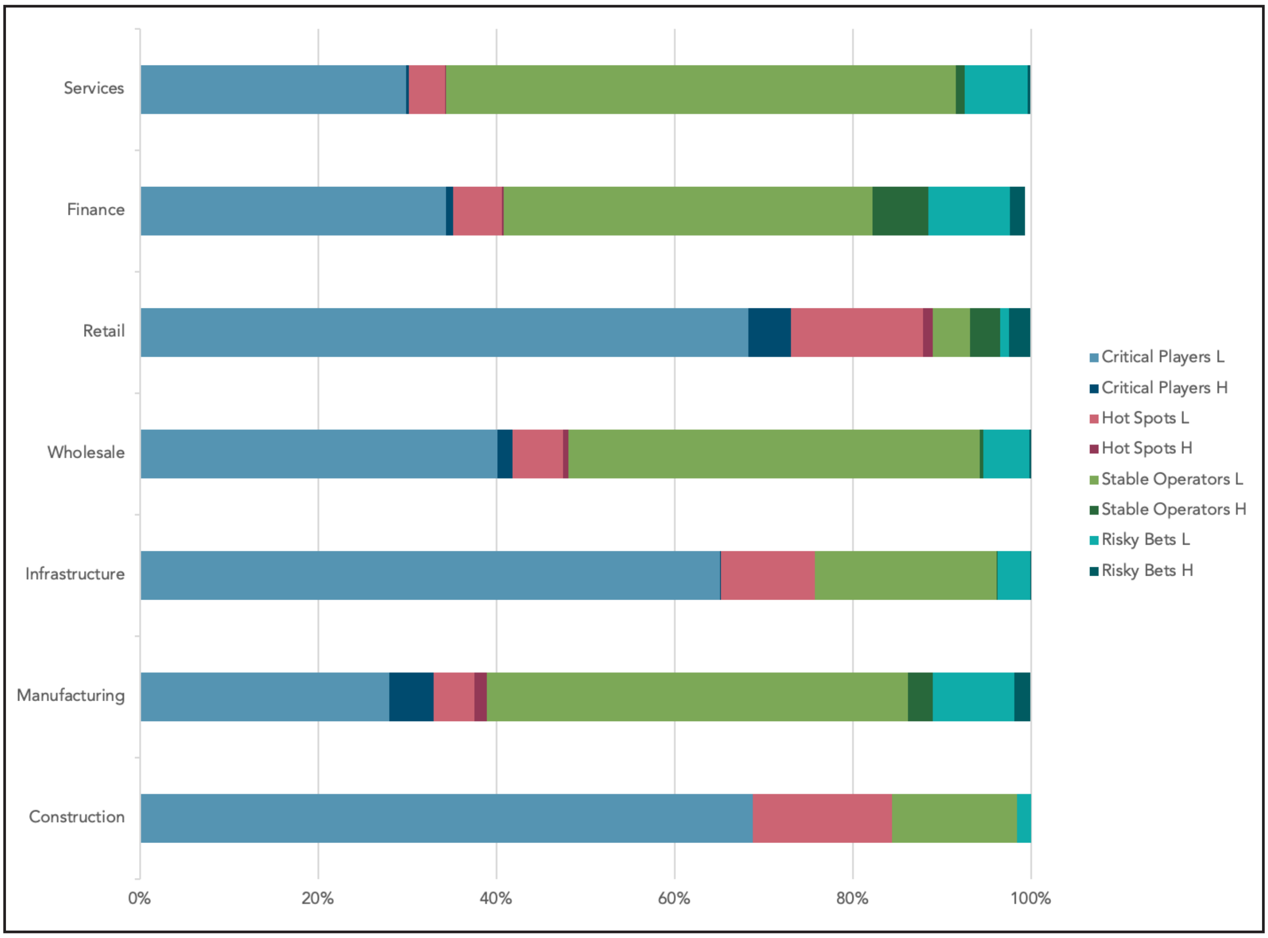
SUPPLY CHAIN RISK GRID[2]



[2] The Supply Chain Risk Grid uses a subset of the core data set, where the data for all three ratings measures (Supplier Criticality, Financial Risk, and Country Risk) is complete. Total number of observations can be found on the last page of this report.

SECTOR-SPECIFIC RISK GRIDS

The bar chart below shows the proportions of relationships in different risk categories, allowing a comparison of risk exposure between different sectors.



Note: L = low country risk; H = high country risk

Both retail and construction (closely followed by infrastructure) have particularly high-risk profiles, with a combination of the highest proportion of suppliers in the Hot Spot category and the lowest proportion in the Stable Operator category. The Hot Spot quadrant indicates high Supplier Criticality and high Supplier Financial Risk. Buying companies should carefully check the financial stability of supplier companies in the Hot Spot quadrant, perhaps dual-source to mitigate the risk (which would also reduce Supplier Criticality), and consider sourcing from more financially stable suppliers. This particularly applies to retail, where 7% of Hot Spot, 7% of Critical Player, and 70% of Risky Bet suppliers are also located in high-risk countries, which further compounds the risk exposure. Because both construction and infrastructure have very few suppliers in high-risk countries, this is not an issue in those sectors.

On the other hand, the services and manufacturing sectors have the least risky profiles, with the highest proportion of suppliers in the Stable Operators category and the lowest in Hot Spots. Manufacturing does, however, have far more suppliers located in high-risk countries than the services sector: 23% of vendors in Hot Spots, 15% of Critical Players, and 16% of Risky Bet suppliers. This compounds the risks already conferred by these quadrants and encourages the use of dual sourcing to mitigate risks.

Both the finance and wholesale sectors also have relatively low-risk profiles, though the wholesale profile is similar to manufacturing, with relatively high proportions of each supplier category in high-risk countries. For the finance sector, the vast majority of the suppliers located in high-risk countries are Stable Operators, and therefore they have low Supplier Financial Risk and Supplier Criticality. This helps to mitigate the risks of using suppliers in high-risk countries.

GLOSSARY AND METHODOLOGY

Supplier Criticality: The percentage of 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 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 buyer–supplier relationships where the supplier is in a country with Country Risk greater than or equal to 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 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 Q3 2019 includes 178,384 buyer–supplier relationships, which informed the calculation of the Supply Chain Risk indices: Supplier Criticality, Supplier Financial Risk, Global Sourcing Risk, and Foreign Exchange Risk. The number of relationships in each sector was as follows – with the number for the Supply Chain Risk Grid given in parentheses because this uses a subset of the core data set, where the data for all three ratings measures (Supplier Criticality, Financial Risk, and Country Risk) are complete:

Construction – 10,656 relationships
Manufacturing – 61,888 relationships
Infrastructure – 11,009 relationships
Wholesale – 2,248 relationships
Retail – 3,303 relationships
Finance – 49,908 relationships
Services – 39,372 relationships

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GUIDANCE ON USE

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