Corporate sustainability: German law to confront complex ESG supply-chain impacts

Supply chains are increasingly under the environmental, social and governance microscope of lawmakers - for good reason. They account for a big share of a company's ESG impact, averaging around 41%, according to Scope's analysis.

The proportion rises to 59% for a company's adverse environmental impact alone, in our macro-level analysis of 1,600 companies in the MSCI World Index.

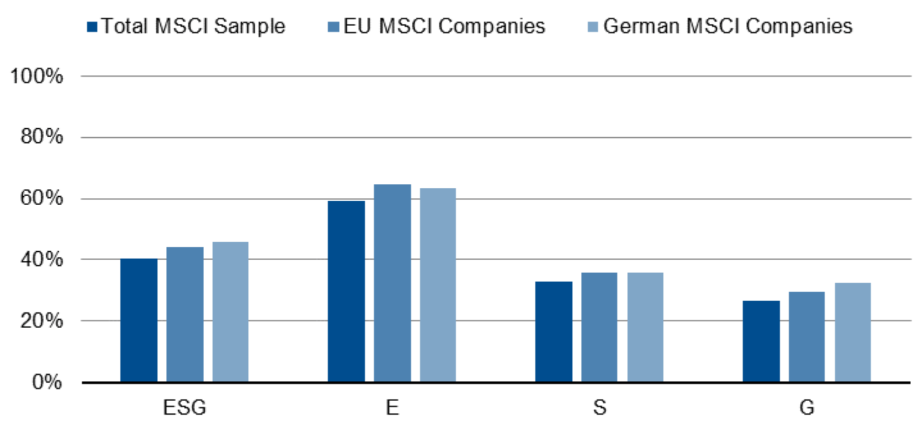
However, the impact of planned new supply-chain legislation on companies will be uneven for two main reasons. Supply-chain ESG impacts vary hugely between sectors. In addition, the more complex the supply chain is, the more difficult it is for the end-producer to trace ESG impacts through suppliers to original raw-material producers. Supply chains in the food sector account of 88% of ESG impacts compared with little in services and mining.

This is the challenging context for legislators – and companies - in Germany, where the government is considering a draft bill committing mid- and large-sized companies to regularly monitor and report on supply-chain ESG impacts. It is the latest sign of increasing concern in Europe about companies' environmental and social impacts beyond their own activities. France's Vigilance Law[1] (2017) and the Netherlands' Child Labour Due Diligence Law (2019) were the first pieces of European legislation to oblige companies to consider and report on ecological and/or social standards at the suppliers.

The stakes for companies are high on two fronts. First, the draft German law proposes fines for non-compliance. Secondly, investor demand for genuinely sustainable investment opportunities – a segment where assets under management now exceed an estimated USD 1tr - promises to lower the cost of capital for those companies which can demonstrate that they have sustainable, low-impact supply chains.

How new ESG legislation will affect companies will vary considerably, even when we consider only the so called "upstream" supply chain, the focus of our analysis: in other words, how a company makes its products and services rather than they are put to use "downstream." Some companies derive little value added from suppliers, ensuring the ESG impact is low. Others rely heavily on products manufactured by external suppliers.

Figure 1: Average ESG supply chain relevance



Source: Scope ESG Analysis, Systain Consulting GmbH

[1] La loi relative au devoir de vigilance des sociétés mères et des entreprises donneuses d'ordre (2017)

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Even a company that requires limited inputs from external suppliers might depend on an intermediate product fraught with ESG risks. The complexity of the supply chain is also relevant. The more steps a supply chain entails, the more difficult it becomes for the end producer to trace back the ESG impact of the raw materials.

Scope takes a macro-level approach to ESG analysis

Scope assigns monetary cost to supply-chain ESG impacts

Our ESG impact scores for listed companies summarise a defined list of external impacts across E, S, and G dimensions of its upstream supply chain by assigning a monetary cost to each euro of revenue. We use macro-level data to compute a statistical approximation of a company's ESG impact.

We specifically focus on the supply chain relevance by analysing how much of a company's negative ESG impacts are attributable to the supply chain versus the company's own production sites. These elements illustrate the significance of global supply chains to a sustainability-oriented economy. Most importantly, it shows that solely considering a company's own production, isolated from its supply chain, is rarely sufficient to make a comprehensive judgement on sustainability.

50%+ harmful environmental impacts in global supply chains

Our analysis reveals that 41% of the harmful ESG impacts of the 1,600 MSCI World Index companies stem from their supply chain. Considering only negative environmental impacts, the supply-chain impact rises to 59%. In other words, more than half of all negative environmental impacts are generated in global supply chains. Environmental impacts can occur outside companies' core activities, for example when processed raw materials serve as intermediate products (petroleum-based plastics, steel, rare earth etc.). Compared with intermediate inputs, stricter environmental legislation or more advanced technology at home can often mitigate environmental impacts in the final production stage.

For the 300 EU companies in the MSCI World Index, the weight of their supply chain on ESG impacts is slightly higher than the average level of all MSCI companies. Of the total ESG impact of EU MSCI companies, 44% is attributed to their supply chains. In terms of negative environmental impacts, the figure is 65%.

Food is sector with the highest supply-chain impact

Of the sectors in the MSCI World Index[2], the food sector exhibits by far the highest supply chain relevance for ESG impacts, with an average of 78%. Considering just environmental impacts, the supply chain-related share reaches 88%.

Hefty ESG impact of large food companies' supply chains

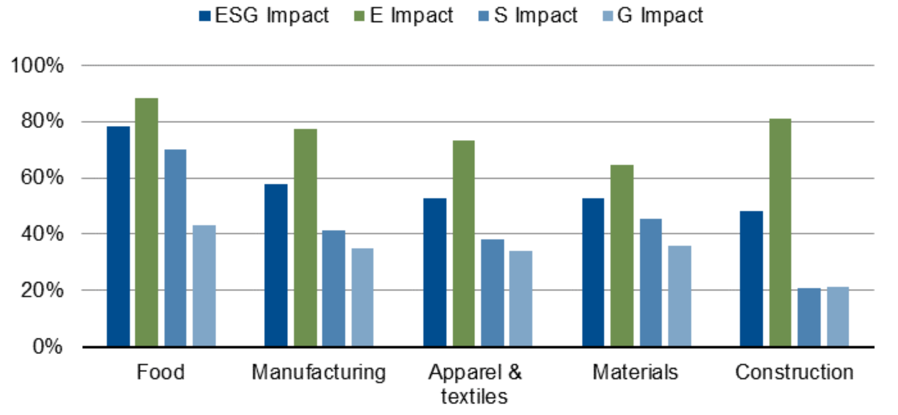
The MSCI food sector encompasses some of the world's largest companies involved in food processing, retail, distribution and brewing. For the large international companies that make up this segment, companies rarely focus on food and beverage production exclusively but act as wholesalers and distributors, hence the importance of their supply chains. In other words, they not only produce food and drink, they also ensure that they reach the end consumer.

Services and mining the lowest upstream supply-chain relevance

At the other extreme of the ranking of supply-chain relevance is the services sector and mining. For companies in these sectors, the upstream supply chain accounts for less than a quarter of ESG impacts on average. A major driver for both sectors is the low reliance on traded goods, due to non-tradability ("haircuts") or sourcing of raw materials in their home markets.

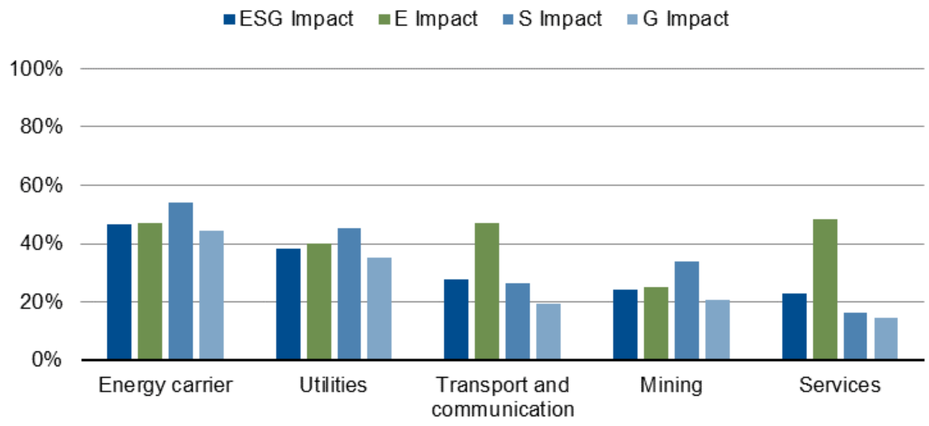
[2] Agriculture is not included as a sector due to the limited sample size of MSCI World Index Companies that are solely within this sector.

Figure 2a: Average ESG supply-chain relevance by sector



Source: Scope ESG Analysis, Systain Consulting GmbH

Figure 2b: Average ESG supply-chain relevance by sector



Source: Scope ESG Analysis, Systain Consulting GmbH

ESG supply-chain relevance in Germany

GEA Group has the highest ESG impacts; automotive sector exposed

Germany's automotive sector in ESG spotlight

Looking at German companies in the MSCI index would be most affected by the proposed ESG supply-chain legislation , the most vulnerable are in the automotive sector: original equipment manufacturers and components makers. The German company with the most supply-chain exposure is industrial equipment supplier GEA Group, with 80% to 85% of GEA Group's negative ESG impact derived from its supply chain. Germany's proposed Supply Chain Act would have a correspondingly large impact on the company.

Figure 3: German non-financial companies with the highest supply-chain relevance

Company	Industry	Supply chain relevance for ESG Impact	Company	Industry	Supply chain relevance for Environmental impact
GEA Group AG	Industrial Machinery & Equipment	80%-85%	**Kion Group AG**	Heavy Machinery & Vehicles	90%-95%
Metro AG	Food Retail & Distribution	75%-80%	**GEA Group AG**	Industrial Machinery & Equipment	90%-95%
Symrise AG	Specialty Chemicals	75%-80%	**HOCHTIEF AG**	Construction & Engineering	90%-95%
E.ON SE	Multiline Utilities	70%-75%	**Knorr - Bremse AG**	Heavy Machinery & Vehicles	90%-95%
Knorr - Bremse AG	Heavy Machinery & Vehicles	70%-75%	**Metro AG**	Food Retail & Distribution	90%-95%
Volkswagen AG	Auto & Truck Manufacturers	70%-75%	**Daimler AG**	Auto & Truck Manufacturers	85%-90%
Daimler AG	Auto & Truck Manufacturers	70%-75%	**Volkswagen AG**	Auto & Truck Manufacturers	85%-90%
Bayerische Motoren Werke AG	Auto & Truck Manufacturers	65%-70%	**Siemens AG**	Industrial Conglomerates	85%-90%
MTU Aero Engines AG	Aerospace & Defense	65%-70%	**Symrise AG**	Specialty Chemicals	85%-90%
Kion Group AG	Heavy Machinery & Vehicles	65%-70%	**Bayerische Motoren Werke AG**	Auto & Truck Manufacturers	85%-90%

Source: Scope ESG Analysis, Systain Consulting GmbH

Services sector ranks favourably: SAP has low ESG supply-chain impacts

The German MSCI company with the lowest supply-chain impact – or negative externalities - is software and services supplier SAP whose suppliers account for only 5-10% of the company's total ESG impact.

Software creation, distribution requires few intermediate inputs

Creation and distribution of software rarely requires intermediate inputs, with value creation almost entirely within the company. A Supply Chain Act would have little impact on SAP.

Figure 4: German non-financial companies with the lowest supply-chain relevance

Company	Industry	Supply chain relevance for ESG impact	Company	Industry	Supply chain relevance for Environmental impact
SAP SE	Software	5%-10%	**RWE AG**	Multiline Utilities	10%-15%
RWE AG	Multiline Utilities	10%-15%	**Deutsche Lufthansa AG**	Airlines	15%-20%
Deutsche Wohnen SE	Real Estate Rental, Development & Operations	15%-20%	**Deutsche Wohnen SE**	Real Estate Rental, Development & Operations	15%-20%
TUI AG	Leisure & Recreation	15%-20%	**TUI AG**	Leisure & Recreation	15%-20%
Deutsche Lufthansa AG	Airlines	15%-20%	**HeidelbergCement AG**	Construction Materials	15%-20%
HeidelbergCement AG	Construction Materials	20%-25%	**Deutsche Post AG**	Courier, Postal, Air Freight & Land-based Logistics	35%-40%
Deutsche Telekom AG	Integrated Telecommunications Services	20%-25%	**Vonovia SE**	Real Estate Rental, Development & Operations	40%-45%
Axel Springer SE	Consumer Publishing	20%-25%	**United Internet AG**	Integrated Telecommunications Services	40%-45%
United Internet AG	Integrated Telecommunications Services	20%-25%	**Axel Springer SE**	Consumer Publishing	45%-50%
Delivery Hero SE	Online Services	20%-25%	**Deutsche Telekom AG**	Integrated Telecommunications Services	45%-50%

Source: Scope ESG Analysis, Systain Consulting GmbH

Implications of German-style law in EU: food sector in spotlight

Implications for ESG supply-chain legislation across EU

The EU MSCI companies whose ESG impact is most highly influenced by the supply chain come from the food sector (see sector results from **Figure 2a**). In addition to procuring input products globally, the sector also depends on various sub-industries, which makes the supply chain complex. High environmental costs are incurred in the production of raw materials (milk, meat, vegetables, etc) and when food is processed. The food sector would face higher costs on average in EU countries where ESG supply-chain legislation of the sort envisaged in Germany is adopted.

Figure 5: 10 EU companies with the highest supply-chain relevance

Company	Country (headquarters)	Industry	Supply chain relevance for ESG impact	Company	Country	Industry	Supply chain relevance for Environmental impact
Chr Hansen Holding A/S	Denmark	Food Processing	85%-90%	**Sanofi SA**	France	Pharmaceuticals	95%-100%
Danone SA	France	Food Processing	85%-90%	**Ipsen SA**	France	Pharmaceuticals	95%-100%
Heineken N.V.	Netherlands	Brewers	85%-90%	**Kone Oyj**	Finland	Heavy Electrical Equipment	95%-100%
Koninklijke DSM N.V.	Netherlands	Diversified Chemicals	85%-90%	**Chr Hansen Holding A/S**	Denmark	Food Processing	95%-100%
Kerry Group PLC	Republic of Ireland	Food Processing	80%-85%	**Recordati Industria Chimica e Farma SpA**	Italy	Pharmaceuticals	90%-95%
GEA Group AG	Germany	Industrial Machinery & Equipment	80%-85%	**SEB SA**	France	Appliances. Tools & Housewares	90%-95%
Novozymes A/S	Denmark	Specialty Chemicals	80%-85%	**Volvo AB**	Sweden	Heavy Machinery & Vehicles	90%-95%
Anheuser Busch Inbev NV	Belgium	Brewers	80%-85%	**Kion Group AG**	Germany	Heavy Machinery & Vehicles	90%-95%
Neste Oyj	Finland	Oil & Gas Refining and Marketing	80%-85%	**Etablissementen Franz Colruyt NV**	Belgium	Food Retail & Distribution	90%-95%
Autoliv Inc.	Sweden	Auto. Truck & Motorcycle Parts	80%-85%	**Jeronimo Martins**	Portugal	Food Retail & Distribution	90%-95%

Source: Scope ESG Analysis, Systain Consulting GmbH

Services is the sector with the lowest supply-chain impact. These sectors operate relatively independently of supply chains and the ESG burden is largely generated within the company itself. In the case of French glass- and building-materials supplier Cie de Saint Gobain, its proximity to the materials sector also explains the company's low ESG supply-chain score.

Figure 6: 10 EU companies with the lowest supply-chain relevance

Company	Country (headquarters)	Industry	Supply-chain relevance for ESG impact	Company	Country	Industry	Supply chain relevance for Environmental impact
Lundin Energy AB	Sweden	Oil & Gas Exploration and Production	0%-5%	**Lundin Energy AB**	Sweden	Oil & Gas Exploration, Production	0%-5%
Capgemini SE	France	IT Services & Consulting	0%-5%	**RWE AG**	Germany	Multiline Utilities	10%-15%
Dassault Systemes SE	France	IT Services & Consulting	5%-10%	**Deutsche Lufthansa AG**	Germany	Airlines	15%-20%
Amadeus It Group SA	Spain	IT Services & Consulting	5%-10%	**Deutsche Wohnen SE**	Germany	Real Estate Rental, Development & Operations	15%-20%
SAP SE	Germany	Software	5%-10%	**TUI AG**	Germany	Leisure & Recreation	15%-20%
Adyen NV	Netherlands	Financial & Commodity Market Operators & Service Providers	5%-10%	**Veolia Environment SA**	France	Water & Related Utilities	15%-20%
Worldline SA	France	Financial & Commodity Market Operators & Service Providers	10%-15%	**HeidelbergCement AG**	Germany	Construction Materials	15%-20%
Covivio SA	France	Commercial REITs	10%-15%	**Compagnie de Saint Gobain SA**	France	Construction Supplies & Fixtures	20%-25%
Icade SA	France	Diversified REITs	10%-15%	**James Hardie Industries plc**	Republic of Ireland	Construction Materials	20%-25%
Klepierre SA	France	Commercial REITs	10%-15%	**Suez SA**	France	Environmental Services & Equipment	25%-30%

Source: Scope ESG Analysis, Systain Consulting GmbH

I. Appendix: Scope's methodological approach

In its ESG methodology, Scope assumes that the supply chain is of fundamental relevance in assessing the sustainability of companies. To fully understand the ESG impact of companies, it is essential to look at the supply chain. If preliminary products and inputs from the so-called "upstream" of a product are unaccounted for, the sustainability assessment solely reflects the impacts arising within the company itself.

Yet many negative environmental and social impacts do not arise within the company but rather with suppliers. These impacts are often unknown to the company itself. In complex supply chains, companies are not even able to trace the route back to the extraction of the raw materials. Others deliberately outsource certain production processes to circumvent high environmental and social standards.

There are no procedures in place that allow companies to trace their supply chains efficiently and effectively. Although there are developments such as blockchain-enabled supply chains or digital tracking using cascaded social networks, the required database for individual tracking is still missing.

Scope has therefore chosen an indirect approach to identify supply chains at the country-sector level, independent of the individual company. With the help of an environmental and social input-output model, Scope initially determines where countries and sectors an individual company typically obtains its raw materials and/or intermediate products. This analysis relies on publicly available import and export statistics. In a second step, Scope links this information to data on emissions, resource use, labour standards and wages in the input countries and sectors. Scope uses this information to determine an average ESG impact, which incorporates the supply chain as a fundamental part of the ESG assessment.

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