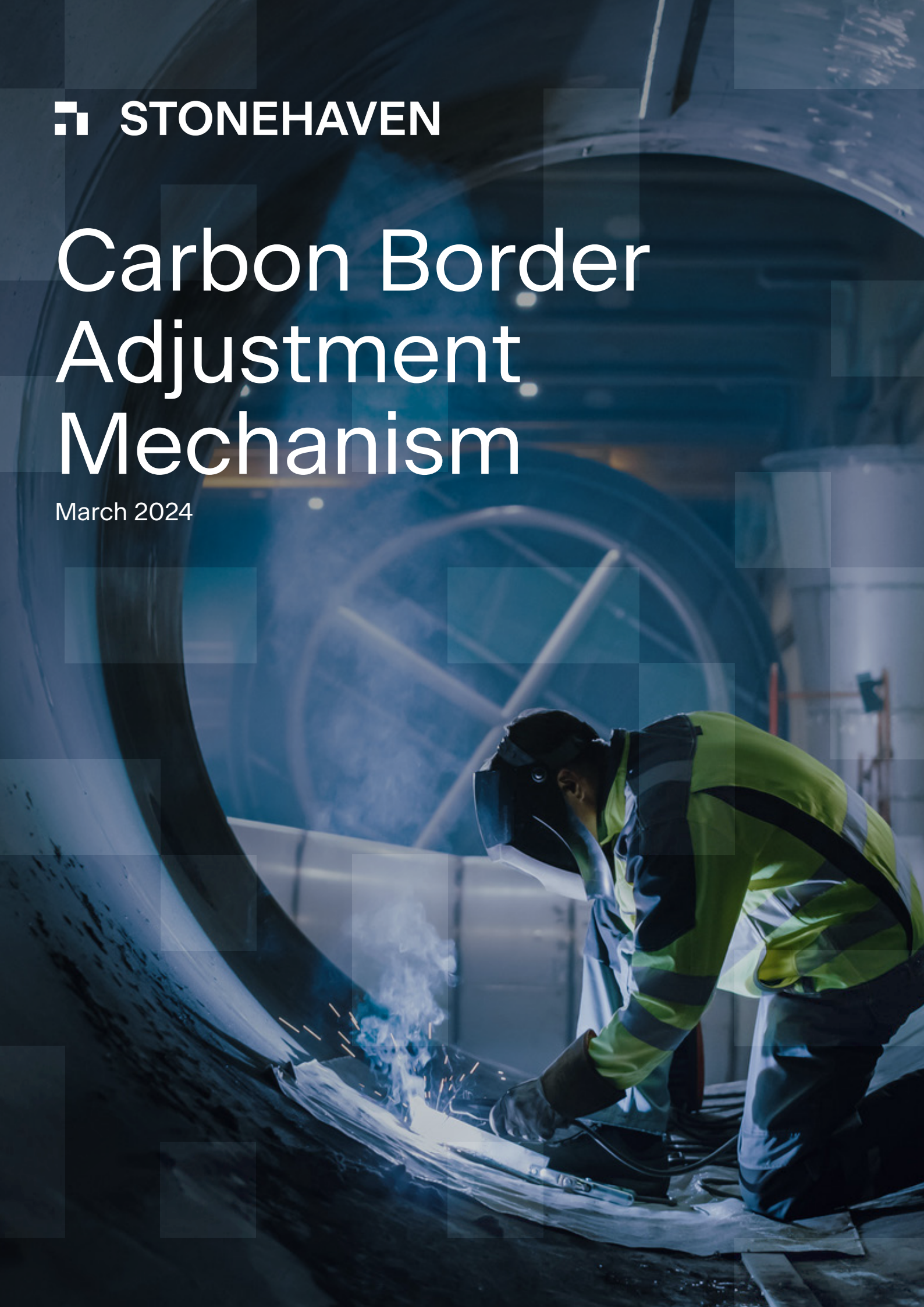
STONEHAVEN

Carbon Border Adjustment Mechanism

March 2024



Key Takeaways

— It is unlikely that the CBAM will have a direct inflationary effect, given the low import dependence of most affected sectors, and the predominance of EU ETS countries as exporters of affected goods.

— However, how domestic producers of affected goods respond is crucial; there is a risk that they might increase their prices and reduce their productivity in response to reduced competitive tensions.

— Implementation of the CBAM may incentivise more imports of affected goods from countries with carbon pricing regimes in place, and result in fewer imports from countries without carbon prices.

— The CBAM may lead to adjustments of the ETS free allocation policy to reflect changes to the carbon leakage risk of affected sectors. This will have implications for investment in decarbonisation.

Introduction

In December, the Government announced that a Carbon Border Adjustment Mechanism (CBAM) will be implemented on imports of certain goods from 2027. Reaction was positive, with almost three-quarters of UK manufacturers supporting a UK CBAM, noting that it can create a level playing field. But border tariffs have a long political history in the UK and have twice split the ruling party: famously 1846 repeal of the Corn Laws, and again in the 1900s over 'Imperial Preference'. Now the UK has control over its own tariffs, we ask: could the tariff debate re-enter British politics in the coming decade? Is the CBAM the new corn law? We take a dive into the issue...

Greenhouse gas emissions create a cost for the world. They contribute to climate change and all the costly adaptations that requires. The cost of producing 'dirty' goods is borne by all. But the benefit – i.e. the revenue from selling the 'dirty' good – goes to only the producer.

Carbon pricing places a financial cost on emitting carbon. By forcing producers to pay a tax for emitting, carbon pricing incentivises them to weigh up the costs and benefits of producing a 'dirty' good. It incentivises them to decarbonise and emit less. However, carbon taxes risk moving production abroad to countries with less stringent regulations – either through factories physically locating, or more likely customers switching their contracts to cheaper imports. This means losing jobs and economic output to other countries with no change in global emissions. This is known as 'carbon leakage', and undermines the objective of reducing global emissions.

The UK's main carbon pricing policy is the UK Emissions Trading Scheme (ETS). This requires companies to buy pollution allowances to cover the extent of their emissions. To mitigate carbon leakage, emissions-intensive industries most exposed to international competition are given free allowances. This reduces the carbon tax they pay, protecting their competitiveness.

In theory, free allowances maintain the incentive for companies to cut their emissions. If the price of an allowance is above the cost of decarbonising, companies are better off cutting emissions and just selling the allowance. But in practice free allowances dampen the incentive to decarbonise. By reducing their carbon tax bill, free allowances put decarbonisation lower down the list of a board's priority. Companies are more complicated than a profit maximising black box – they operate within constraints such as board or managerial capacity.

A carbon border adjustment mechanism (CBAM) is another way to deal with carbon leakage. A CBAM puts a carbon tax on imports from countries with a lower carbon price, creating a level playing field with UK industry. A CBAM could also protect the UK from countries diverting their emissions-intense goods from the EU to the UK in response to the EU CBAM, **a key concern of the UK steel industry**. The CBAM is due to come into effect by 2027, covering imports of aluminium, cement, ceramics, fertiliser, hydrogen, glass, iron and steel.

But what does the CBAM mean for the British economy? Is it a return to tariffs, protecting inefficient industry at the expense of the everyday consumer?

Rationale for free trade

Tariffs have historically been used to protect domestic industries, raise revenues, or punish competing countries. The Corn Laws, enacted in 1815, placed tariffs on imported grains to protect British landowners from imports depressing prices. The 1846 repeal of the Corn Laws came after protests as the tariffs made imports too expensive, even when domestic supply was low, marking the shift towards free trade.

From its earliest days of Adam Smith and David Ricardo, economics has championed division of labour – everyone benefits when people specialise and trade rather than trying to make everything themselves. This holds both at the level of households and countries. Eliminating tariffs facilitates free trade, encouraging countries to shift resources to produce what they are best in, trading some of those goods for goods other countries are best in. The ultimate effect of this is that countries produce more goods with the same amount of resources, facilitating economic growth. Free trade increases competition, putting pressure on firms to use their resources more efficiently to minimise costs. By allowing producers to specialise and sell in larger markets, free trade also encourages increasing returns to scale,

So is a carbon tariff compatible with free trade? Will it just protect British industry, encouraging inefficiencies, holding back productivity and ultimately harming consumers?



Will the CBAM be inflationary?

One concern is that implementing a CBAM will lead to higher priced inputs, creating inflationary pressures that reverberate across the UK economy. Whether a CBAM will have a **direct** inflationary effect depends on three tests:

A) How dependent on imports the CBAM-affected sectors are;

B) Where the UK imports CBAM-affected goods from and whether those countries have similar carbon prices;

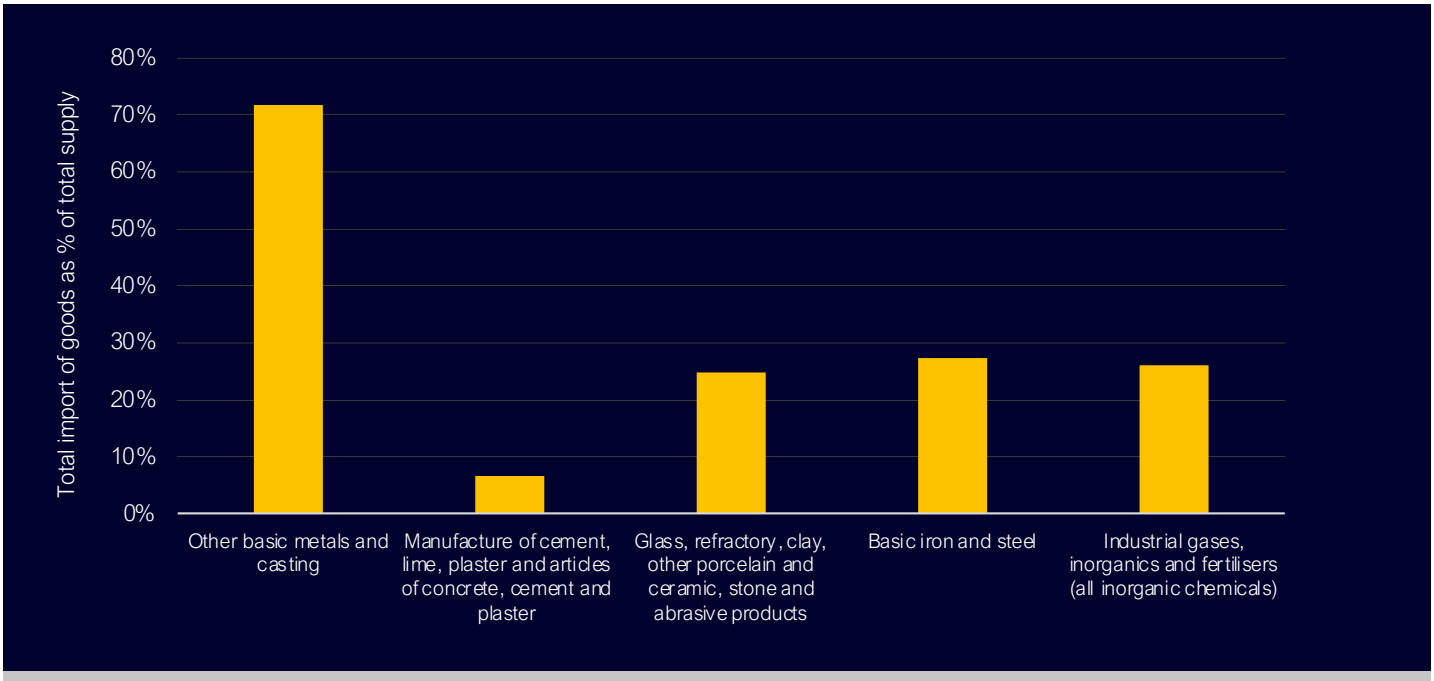
C) How dependent the rest of the UK economy is on the CBAM-affected sectors.

The higher the import dependence and the difference in carbon price, the more cause for concern. If the UK relied heavily on imports from countries without carbon prices, then it is likely that a carbon tax would lead to higher input costs for those sectors. The less dependent a sector is on imports, the more it can substitute domestic inputs when faced with highly-taxed imported inputs. The following section explores these three tests in more detail.

A) CBAM sectors have low import dependences

Figure 1 shows that the CBAM-affected sectors have import dependences of under 30%, with the exception of the other basic metals and casting sector. However, it is difficult to determine whether that high import dependence is driven by aluminium imports or imports of other metals such as lead, zinc, tin and copper.

Figure 1: Import dependence of high emissions-intensive sectors, 2021[1]



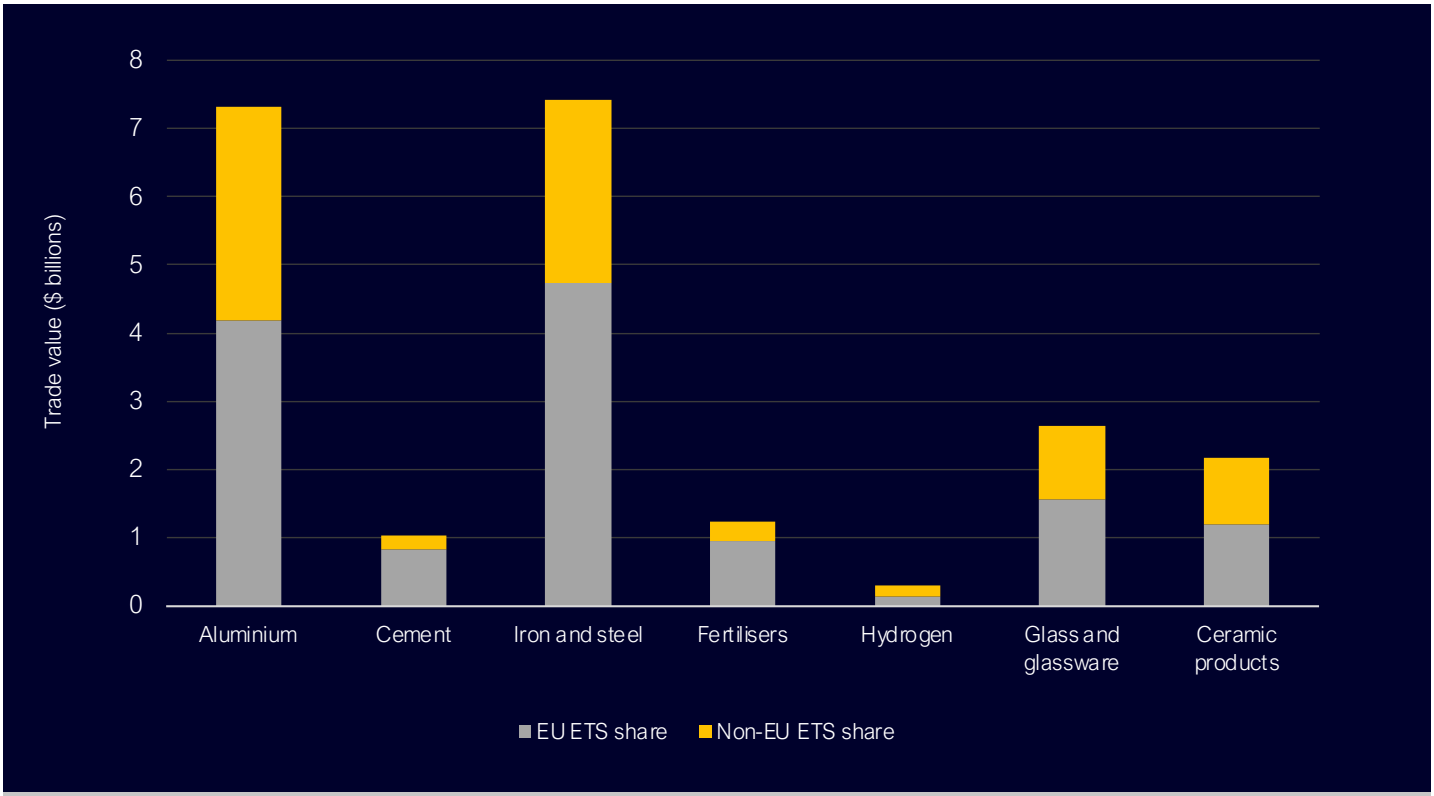
Source: Stonehaven calculations of ONS Supply and Use Tables, 2021[2]

B) Most imports of affected goods come from EU ETS countries

Figure 2 shows that the UK relied on EU ETS countries for imports of CBAM-covered goods more so than other countries. This means that given the cooperation and potential linking of EU and UK carbon pricing regimes, the prices of these imports should not rise as a result of the CBAM.

We can also look at raw aluminium.[3] Aluminium imports include both aluminium in its unfinished state (raw) and aluminium in a finished condition, such as aluminium wires, pipes, and parts. In 2021, raw aluminium imports made up 14% of all aluminium imports to the UK. Whilst almost 61% of aluminium imports came from EU ETS countries, the majority (almost 70%) of imported raw aluminium comes from outside the EU ETS. We could see CBAM leading to increased prices of raw aluminium, as 56% of raw aluminium imports in 2021 came from countries which do not have a carbon pricing initiative implemented nor under consideration.

Figure 2: Imports of CBAM-affected goods, 2021



Source: Stonehaven calculations of The Observatory of Economic Complexity (oec.world)

[1] The exact goods the CBAM will apply to will be the subject of consultation in 2024.

[2] Aluminium falls under other basic metals and casting; cement falls under manufacture of cement, lime, plaster and articles of concrete, cement and plaster; glass and ceramics both fall under glass, refractory, clay, other porcelain and ceramic, stone and abrasive products; iron and steel fall under basic iron and steel; hydrogen and fertiliser both fall under industrial gases, inorganics and fertilisers (all inorganic chemicals).

[3] In Figure 2, 'aluminium' includes raw aluminium and aluminium in a finished condition; 'cement' includes raw cement and cement articles, like blocks, bricks, tiles and prefabricated structural components

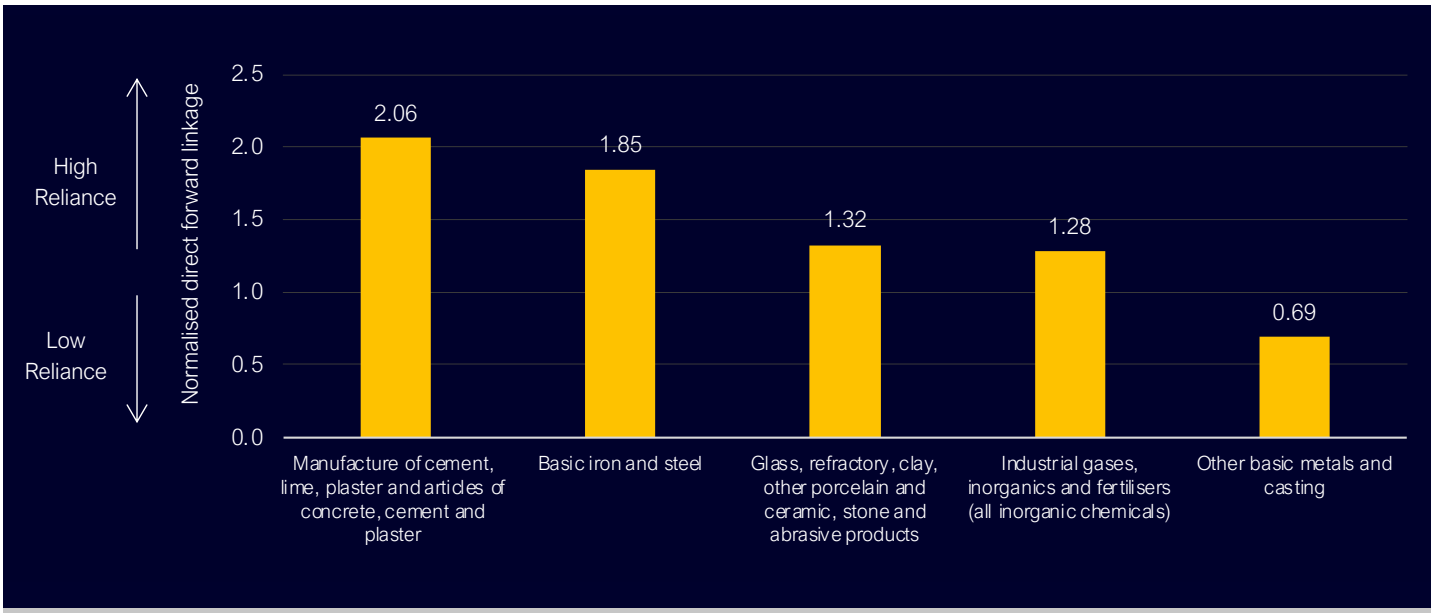
C) The UK economy strongly relies on inputs from cement manufacturing, less so on other basic metals and casting.

Figure 3 shows the importance of each sector as an input for the rest of the UK economy. The direct forward linkage of a sector is the value of goods sold as inputs to other sectors as a share of gross output. The normalised direct forward linkage of a sector takes this value and divides it by the simple average of all direct forward linkages. A §normalised direct forward linkage above 1 suggests that the rest of the economy has a higher than average dependence on that sector as a provider of inputs, and so a shock to that sector will reverberate strongly across the economy.

Figure 3 shows that, of the CBAM affected sectors, the economy is most reliant on the manufacture of cement, lime, etc. But figures 1 and 2 show this sector has the lowest import dependence, and most of its imports come from the EU (almost 80% for cement and cement articles).

While the other basic metals and casting sector has the highest import dependence, its score in Figure 3 is below 1, suggesting that not many UK manufacturers rely on aluminium. It is likely that the knock-on impacts of any increases in the price of imported aluminium goods will be limited.

Figure 3: Sectoral dependence of high emissions-intensive sectors, 2021



Source: Stonehaven calculations of ONS Supply and Use Tables, 2021.

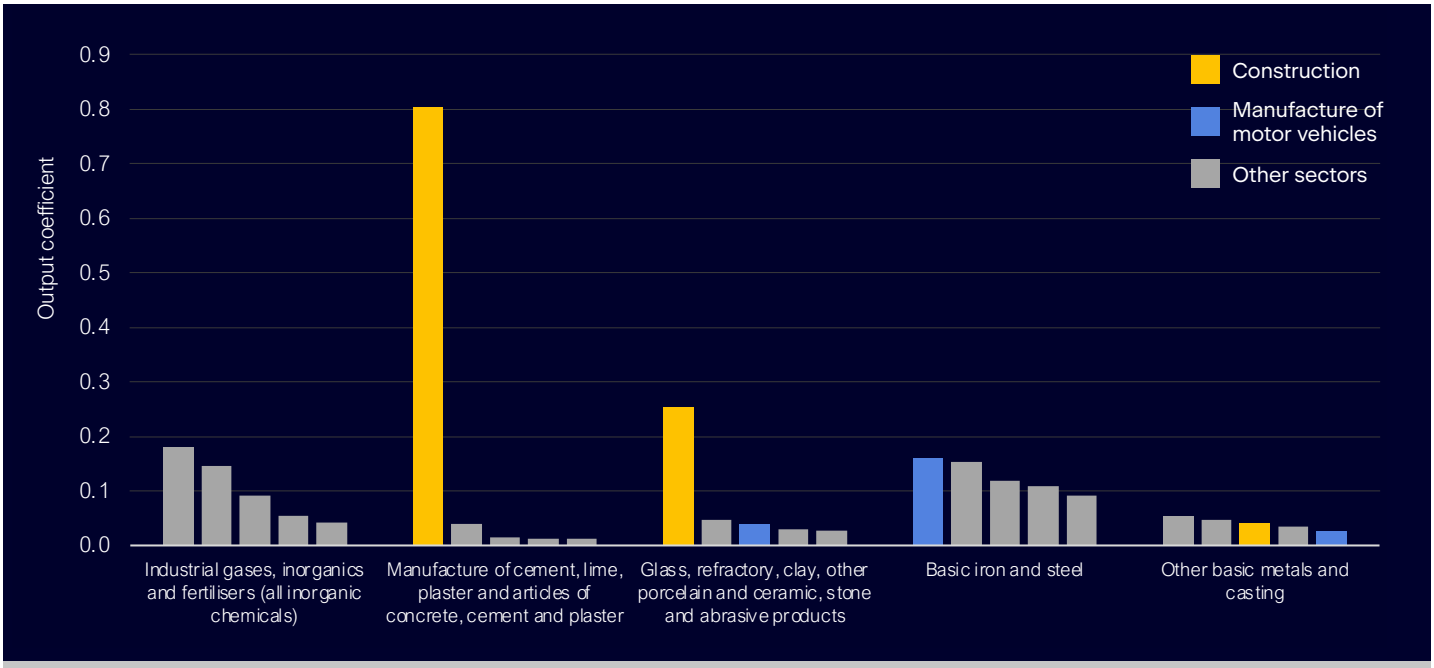
C) Construction relies the most on inputs from CBAM-affected sectors.

Figure 4 below shows how reliant sectors are on CBAM products. The sector most dependent on inputs from CBAM-affected sectors is construction (red), which relies heavily on inputs from cement, and to a lesser extent, glass, ceramics, and basic metals. In second is the motor vehicles, trailers and semi-trailers sector (blue) which relies on basic iron and steel the most.

However, this does not mean that these sectors will be the most impacted by the CBAM, as that will depend on the difference in carbon prices.

For example, if the difference in EU and UK carbon prices is low, it's possible that most cement imports will not be severely affected, meaning that the construction sector won't face increased cement costs. Construction might, however, face higher aluminium costs, given the higher share of aluminium imports coming from countries without carbon prices.

Figure 4: Top 5 output coefficients of each CBAM-affected sector, 2021



Source: Stonehaven calculations of ONS Supply and Use Tables, 2021.

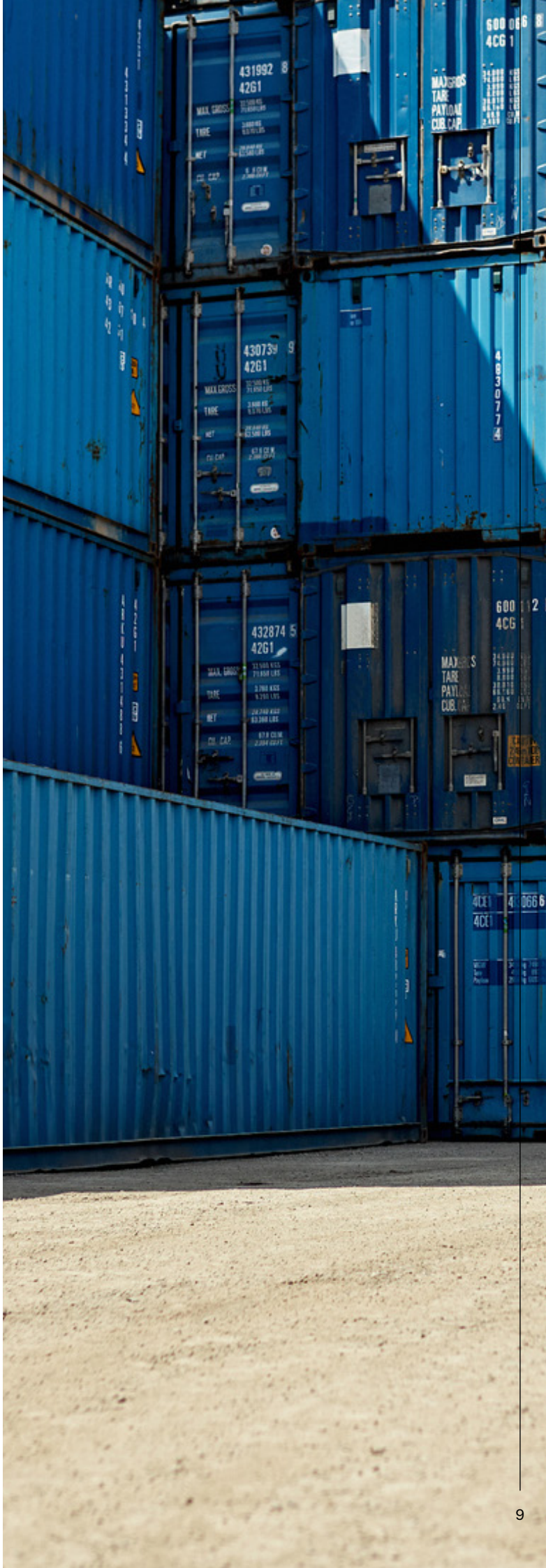
C) How reliant is the rest of the economy on construction and motor vehicles?

We can gauge how reliant the rest of the economy is on the construction and motor vehicles sectors by looking at their normalised direct forward linkages, which stand at 0.95 and 0.53 respectively. Both figures are under 1, suggesting that the rest of the economy has a lower than average dependence on the two sectors as providers of inputs. This implies that the knock-on impacts of increased supply costs experienced by the sectors will be limited.

Moreover, the sectors that are most directly reliant on inputs from CBAM-affected sectors are interdependent and tend to have their highest direct forward linkage to themselves. In other words, their highest sales of intermediate goods are with themselves or with each other. This further suggests that the effect of the CBAM will be contained to those sectors, and suggests that there may be positive feedback loops if input prices increase.

What does the CBAM mean for free emission allowances?

Both the CBAM and free allowances are ways of combating carbon leakage. It's therefore valid to ask whether we need both. The Government is consulting on free allocation under the UK ETS, suggesting free allocation could change once the CBAM is introduced. One approach could be to phase out free allocation for CBAM-covered sectors. However the CBAM may not reduce the risk of carbon leakage equally between sectors, so a methodology for a gradual phase-out would need to reflect the specific risks to individual sectors.



Things to watch out for

While the data above suggests that the direct inflationary effect of the CBAM could be minimal, there may be unintended consequences further down the line.

Less competition in raw materials may mean less productivity

Domestic producers no longer feeling the threat of entry from cheaper imports may change their behaviour in two concerning ways. First, with higher market power, they might raise their prices. Second, less competition also means firms have a lower incentive to control their costs, leading to reduced efficiency and lower productivity.

Competition may move from raw materials to finished goods

Countries subject to a high carbon tax may choose to use more of their raw materials domestically, producing goods which are exported back to the UK at a lower price. Alternatively, these countries could sell their raw materials to manufacturing countries without carbon prices, meaning third parties can win from the UK CBAM as their exports get more competitive. This would just move competition further down the value chain, reducing the competitiveness of UK manufacturers.

What happens to investment?

While there are risks that a CBAM reduces competitive tensions and thus incentives to be competitive, the removal of free allowances means that firms are more exposed to the carbon price. Here we have opposing forces to investing in decarbonisation. It is important to note that the Government would get more tax revenue by removing free allowances and taxing imports. This tax revenue could be used to facilitate investment in decarbonising technologies.

Alternatives to carbon pricing

Carbon markets are a political creation, and consequently, are deeply influenced by political uncertainty. While they may make green goods more attractive than their emissions-intensive counterparts, they are not in and of themselves enough to provide the certainty needed to invest in a new plant for green steel.

Policies need to be designed to preserve the incentive to decarbonise without compromising the competitiveness of domestic industry. France's **new EV subsidy** walks this tightrope well. By limiting the eligibility of the subsidy to EVs that meet its production carbon footprint criteria, France has made Chinese EVs, which rely on coal-generated electricity, less competitive.

Note

The analyses presented above is based on Supply and Use Tables and import data from 2021, and therefore reflect the interdependences and import dependences of the UK economy for that year. Any direct inflationary impact of the CBAM will also depend on whether implementation of CBAMs in the EU and the UK result in actions that reduce the carbon price differential by other countries in efforts to preserve their competitiveness. Such actions may include measures to reduce embodied emissions in the production of CBAM-affected goods, and the acceleration of plans to implement explicit carbon pricing to exporting industries in countries like China.