

VOLKSWAGEN AKTIENGESELLSCHAFT

Frequently Asked Questions

MSCI ESG Research

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THE FACTS:

On September 18th, German car manufacturer Volkswagen (VLKAY) came under fire for allegedly underreporting car emissions in the U.S. The case affects 482,000 models with diesel powered engines in the US (VOLKSWAGEN Jetta, Beetle, Golf and Audi A3). The U.S Environmental Protection Agency announced that the company could be penalized up to USD 37,500 per vehicle, or a total of more than USD 18 billion, since Volkswagen has sold almost half a million of these diesel vehicles since 2008.

In early 2014, the International Council on Clean Transportation began to review discrepancies in the emissions of a number of Volkswagen diesel cars. As a consequence, the U.S. Environment Protection Agency opened an investigation into Volkswagen in May 2014, as it was revealed on September, 18th 2015. Volkswagen cooperated with authorities and recalled approximately 500,000 vehicles to fix the reason for higher NOx emissions. However, there had been no indication that Volkswagen systematically and intentionally manipulated diesel vehicles. Moreover, the company had not been involved in similar cases (of less severity) in the previous years.

On Tuesday, September 22nd, CEO Martin Winterkorn admitted that the problem was potentially bigger than originally reported by the media. Internal investigations at Volkswagen pointed to potential emissions discrepancies for 11 million vehicles sold worldwide. On Wednesday, September 23rd, Winterkorn stepped down from his position.

On September 30th, MSCI ESG Research downgraded Volkswagen from BBB to CCC. MSCI ESG Research is monitoring further development of the case.

1. DID MSCI ESG RESEARCH NOTE ANY GOVERNANCE CONCERNS IN PREVIOUS ASSESSMENTS?

MSCI ESG Research has had corporate governance concerns about Volkswagen. In April 2015, scion of the Porsche family, Ferdinand Piëch, resigned as chairman of the company’s supervisory board following a short-lived clash with CEO Martin Winterkorn, precipitated by the former chairman publicly announcing that he had "distanced" himself from the CEO. This power struggle raised questions as to the effectiveness and stability of the company’s management.

2. WHY ARE TOXIC EMISSIONS (NOX EMISSIONS) NOT CONSIDERED A KEY ISSUE OF CONCERN FOR THE AUTOMOBILE INDUSTRY GIVEN THIS CONTROVERSY?

MSCI ESG Research considers the case primarily linked to business ethics and corporate governance. The intentional manipulation of emissions test results raises questions over business ethics and governance practices at Volkswagen. The potential involvement of the company's executive board would present severe violations of business ethics practices. At the same time, the potential scenario that executive management at VW was not aware of the issue would pose questions about effective control mechanisms and leadership at the German carmaker.

Volkswagen has been accused of having manipulated NOx emissions test results in the US. NOx refers to the mono-nitrogen oxides nitric oxide (NO) and nitrogen dioxide (NO₂). These emissions are local air pollutants, not to be confused with the greenhouse gas nitrous oxide (N₂O). NOx emissions are associated with environmental and health impacts such as acid rain or respiratory diseases.

NOx emissions are generated during the combustion of oil, gas or coal. Key sources of NOx emissions include industrial processes, power plants, and the transportation sector. However, NOx emissions are not considered a key issue for the automobile industry, as air pollutants from a carmaker's fleet are lower compared to other companies in the transportation sector such as shipping companies. NOx emissions linked to road transport have significantly fallen in the past years compared to other key sources. According to the European Environmental Agency, NOx emissions from road traffic decreased by 48% between 1990 and 2014. This decrease is due to technological improvements and relatively stringent regulations, especially in the U.S. Thus, in comparison to other environmental impact of the automobile industry such as carbon emissions, air pollutants from vehicles are currently not considered a key issue.

MSCI ESG Research reviews its key issue selection by industry on an annual basis in order to take into consideration any necessary changes.

3. COULD THIS BE AN ISSUE ENDEMIC TO THE SECTOR?

As of September 23rd, there has been no indication that other carmakers are involved in the manipulation of NOx emissions testing. However, the automobile industry will likely come under higher levels of regulatory scrutiny in the short to medium term. The EPA and the California Air Resources Board have started gathering other manufacturers' vehicles to test for data manipulation. The German government also announced the plan to investigate the

matter, while South Korean regulators plan an investigation of NOx emissions of VW Jetta and Gold models and Audi A3 cars produced in 2014 and 2015. If similar concerns are found, South Korea's environment ministry probe would be expanded to all German diesel imports, which have surged in popularity in recent years in a market long dominated by local producers Hyundai and Kia.us

The issue raises questions about the future of diesel technology in the U.S., Europe and other regions. In general, diesel powered cars make up more than half of all new cars on the road in Europe. One of their major advantages is linked to diesel engines' higher fuel efficiency over petrol engines resulting in lower fuel prices for customers. However, in the U.S., diesel cars represent less than 1% of the market. The Volkswagen scandal raises questions about the future marketability of diesel engines.

Aside from VW, other German carmakers Daimler and BMW are at risk of scrutiny and potential consumer backlash triggered by reputational damage. Other non-German carmakers with a presence in the diesel market, such as General Motors, and Fiat Chrysler face potential investigations.

4. DOES MSCI VERIFY CORPORATE DISCLOSURE?

As part of the MSCI ESG Rating process, all companies are given an opportunity to participate in the data verification process by reviewing and commenting on their company's reports. As with all companies, VW was included in this process and given the opportunity to comment on published research. As of September 30, 2015, the company had not commented.

5. COULD THIS SCANDAL IMPACT OTHER INDUSTRIES (SUPPLY CHAIN, E.G. AUTO COMPONENTS COMPANIES)?

The Volkswagen case poses potentially significant business risks to suppliers that are involved in diesel technology. Volkswagen's suppliers BorgWarner and Tenneco have the highest exposure to risk due to potential decline in demand for diesel engine production and emissions control technology. BorgWarner is considered one of the leading manufacturers of diesel cold starting technology. The company offers electronically controlled quick starting systems for diesel engines. Tenneco produces diesel particulate filters currently equipping 34 passenger car and light truck models.

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