

# DATA TO ACTION

ANALYSIS OF AUTOMOTIVE INDUSTRY

JENNIE FRANCO  
MAY 2023

# General Motors fares better than the competition

## HOW DOES FORD'S REVENUE COMPARE WITH GENERAL MOTORS' REVENUE?

Ford had a 15.9% increase in Total revenue from 2021 to 2022. It rose from \$136 billion in 2021 to \$158 billion in 2022. While their gross profit had an increase of near 5%.

General Motors' Total revenue for 2022 was \$156 billion, an **23.4% increase** from the previous year. With a 17% increase in gross profit.

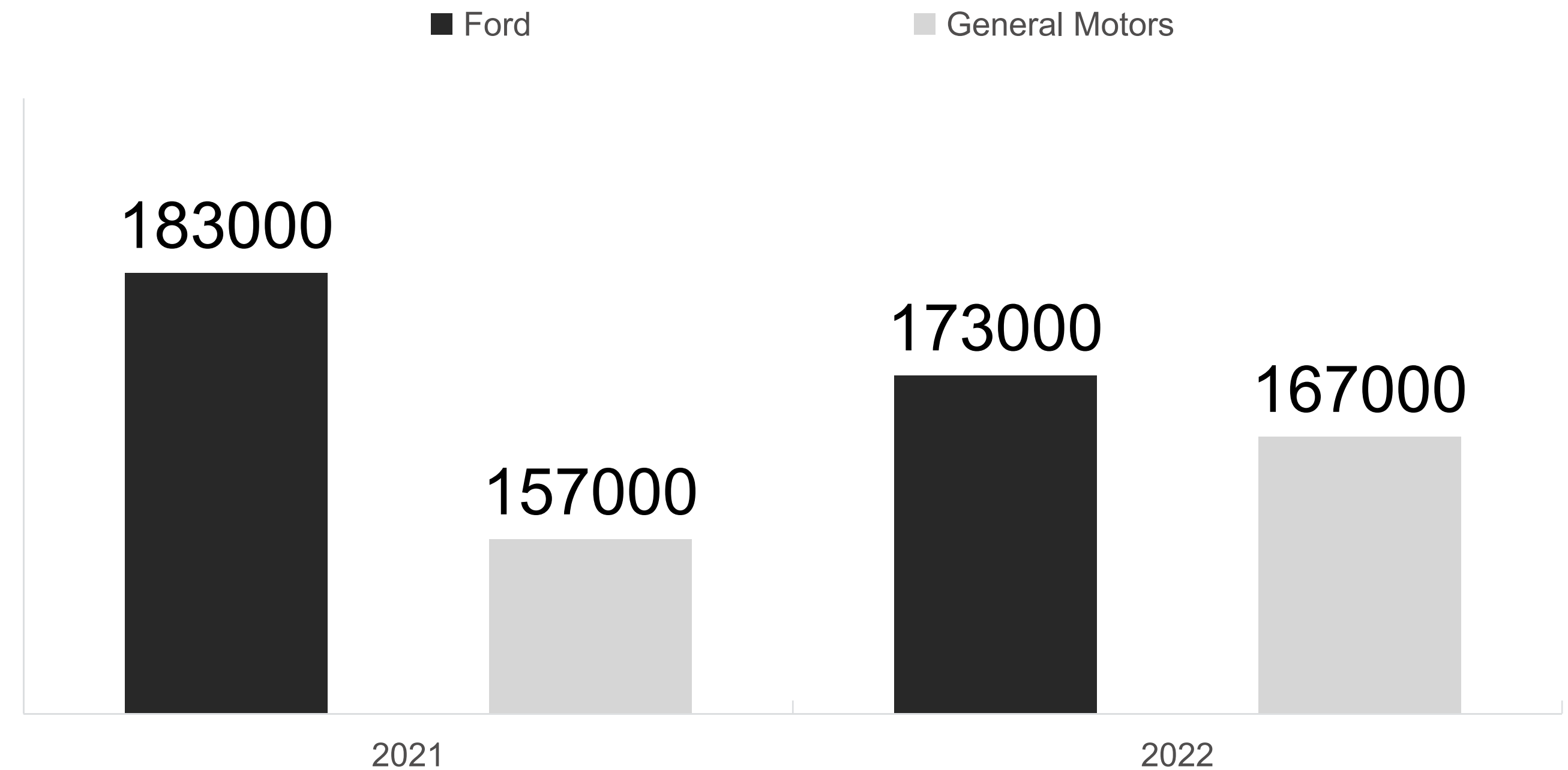
However, both companies saw an increase in net debt with a percent change of more than 3%, meaning they have accumulated more debt over the past 12 months.



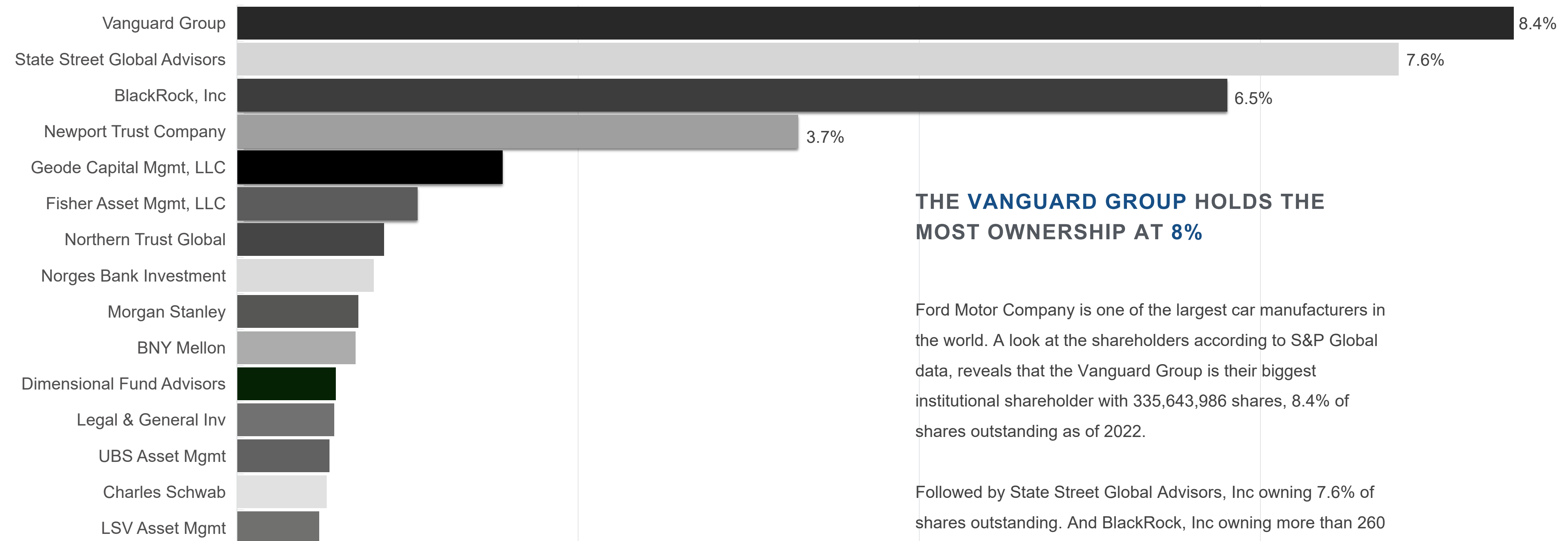
# Number of Employees: 2021 - 2022

The number of employees in two of the largest automotive brands in the United States are more than 100,000.

Ford saw a decrease of 5% from the previous year, while GM employed more full time workers increasing their workforce by 6% in 2022.



# 4 A look at the shareholders of Ford Motor company



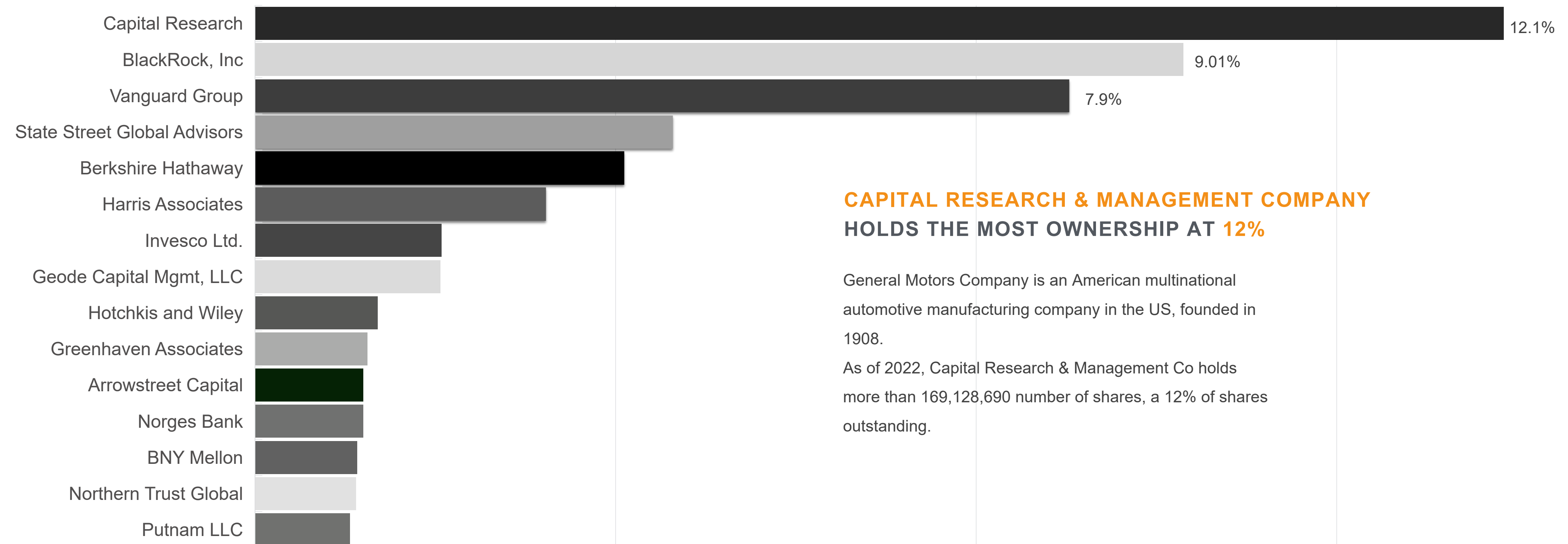
## THE VANGUARD GROUP HOLDS THE MOST OWNERSHIP AT 8%

Ford Motor Company is one of the largest car manufacturers in the world. A look at the shareholders according to S&P Global data, reveals that the Vanguard Group is their biggest institutional shareholder with 335,643,986 shares, 8.4% of shares outstanding as of 2022.

Followed by State Street Global Advisors, Inc owning 7.6% of shares outstanding. And BlackRock, Inc owning more than 260 million, about 6.5% of shares outstanding.



# 5 Who owns General Motors?



**CAPITAL RESEARCH & MANAGEMENT COMPANY  
HOLDS THE MOST OWNERSHIP AT 12%**

General Motors Company is an American multinational automotive manufacturing company in the US, founded in 1908.

As of 2022, Capital Research & Management Co holds more than 169,128,690 number of shares, a 12% of shares outstanding.

VANGUARD, BLACKROCK, BNY MELLON, AND STATESTREET GLOBAL ARE AMONG THE TOP 15 INSTITUTIONS THAT HAVE SUBSTANTIAL OWNERSHIP IN BOTH FORD AND GM.

# Are stock prices correlated to trading volumes?

The stock prices and trading volumes of both Ford and General Motors are evaluated to see if a relationship exists.

- **Variable 1: Trading Volume**

Trading Volume is the amount of security that was traded during a given period of time. (Investopedia)

- **Variable 2: Stock Price**

Stock Price refers to the current price that share of stock is trading for on the market. (Corporate Finance Institute)



## FORD MOTOR COMPANY

$$P = 0.45$$

With a Pearson correlation value of 0.45, there is a positive and moderate relationship between trade volume and stock price for Ford Motor Company. This means there is room to believe that as the stock prices go up, then trading volumes increase.

## GENERAL MOTORS COMPANY

$$P = 0.19$$

With a Pearson correlation value of 0.19, there is a positive and weak relationship between the two variables for General Motors' Company. The coefficient here is quite low.



# 7 Inventory Analysis

	2021	2022	DAYS INVENTORY OUTSTANDING
Ford	38.40	38.25	
General Motors	47.12	44.19	

According to Investopedia, The days inventory outstanding ratio is calculated as inventory divided by the cost of goods sold (COGS) and then multiplied by 365.

- This ratio measures the average number of days a company holds inventory before selling it. Holding unsold inventory is costly.

The ratio of inventory for Ford has remained relatively the same around 38 in the past two years and has slightly decreased for General Motors from 47 to 44.

Overall, the ratio has not increased over time for both automakers, which signifies that these companies are managing their inventory quite well.

$$\text{DAYS INVENTORY OUTSTANDING} = \frac{\text{AVERAGE INVENTORY}}{\text{COST OF GOODS SOLD}} \times 365$$

FORD & GENERAL MOTORS MANAGE THEIR INVENTORY QUITE WELL

# 8 Resources

## LINKS TO RESOURCES OF FORMULAS & DEFINITIONS

- Trading Volume Definition: [Investopedia.com](https://www.investopedia.com/terms/t/trading-volume.asp)
- Stock Price Definition: [Corporate Finance Institute](https://www.corporatefinanceinstitute.com/terms/stock-price-definition/)
- Days Inventory Outstanding Formula: [Investopedia.com](https://www.investopedia.com/terms/d/dio.asp)
- S&P Global Data

---

Analysis of Ford and GM were conducted in Databricks using SQL and Python, and further visualizations and correlations were performed in R.



An illustration of a man in a dark suit and red tie standing next to a dark blue car. He is leaning against the open driver-side door. The background shows a modern building with large windows and some trees. The text 'THANK YOU' is written in large, white, sans-serif capital letters across the middle of the image.

THANK YOU