Cattolica Investment Club

Market Cap	37.058 B
52-Wk High	14.85
52-Wk Low	9.10
P/E Ratios	6.40

Corporate Finance Team:

Martin Rumanovský – Co-Head
martin.rumanovsky01@icatt.it
Gian Carlo Sari – Co-Head
giancarlo.sari01@icatt.it
Giuseppe Caccamo – Senior Associate
giuseppe.caccamo02@icatt.it
Riccardo Coti Zelati – Associate
riccardo.cotizelati01@icatt.it
Isabelle Cella - Associate
isabelle.cella01@icatt.it
Silvia De Santis - Associate
silvia.desantis01@icatt.it
Alessandro Marcì - Associate
alessandro.marci01@icatt.it
Giorgia Mentasti - Associate
giorgia.mentasti01@icatt.it
Maelyne Frydman - Associate
maelyne.frydel@gmail.com

Table of contents:

Ford Motor Co. (F. NYSE)

BUY: €10.65
10th February 2025

CATTOLICA INVESTMENT CLUB
WHERE KNOWLEDGE TAKES YOU PLACES

COMPANY DESCRIPTION

Ford Motor Company, headquartered in Dearborn, Michigan, is a worldwide automotive enterprise, with a market capitalization of 37.058 billion. The purpose is to connect people to new possibilities, adventure and the freedom of movement while remaining committed to building a better world for future generations. Along with its 177,000 employees, Ford believes in creating a world with fewer obstacles and limits by enhancing mobility.

The company traces its origins back to 1903, when it was founded to produce and sell cars designed by Henry Ford, who had engineered his first vehicle in 1896. In 1919, Henry Ford and his son acquired full ownership of the company by buying out minority shareholders, securing the complete control of the business. Beyond its contributions to the automotive industry, Ford has also played a crucial role in times of need. During both World Wars, the company shifted part of its production capacity to support military efforts, manufacturing vehicles, submarine chasers, tanks, and aircraft.

Today, Ford operates in over 125 countries worldwide, with North America and Europe as its primary markets. A range of vehicles are designed, such as Ford trucks, SUVs, commercial vans, cars and Lincoln luxury models, along with the offering of connected services. Its operations are structured into 3 customer-focused business segments:

1. Ford Blue: gas-powered and hybrid vehicles
2. Ford Model e: electric vehicles and advanced digital experiences
3. Ford Pro: tailored vehicles and services.

In addition, the company provides financing solutions through Ford Motor Credit Company LLC.

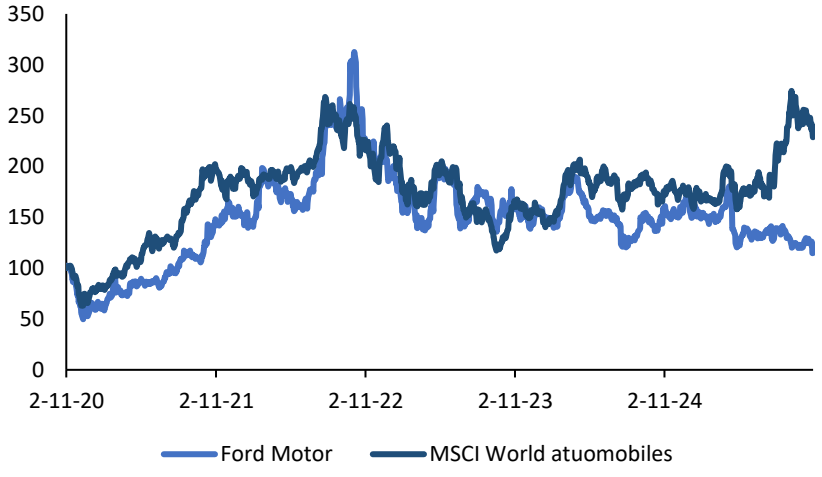

Figure 1: 3y Returns of a 100$ investment

($ million)	FY 2021	FY 2022	FY 2023	FY 2024
Revenue	115.339,8	150.396,0	162.946,5	171.053,4
EBITDA	10.379,1	25.251,7	17.439,5	12.407,0
EBIT	3.826,3	17.553,8	9.807,8	4.825,8
Net Income	15.174,1	-1.885,0	4.020,2	5.436,0
EBITDA Margin	9,0	16,8	10,7	7,3

($ million)	FY 2021	FY 2022	FY 2023	FY 2024
Total Assets	257.035,0	255.884,0	273.310,0	285.196,0
Total Liabilities	208.413,0	212.717,0	230.512,0	240.338,0
Equity	48.622,0	43.167,0	42.798,0	44.858,0

Figure 2: Financial Overview

INDUSTRY OUTLOOK

The automotive sector is one of the pillars of the global economy, with a significant impact on manufacturing, employment, and technological innovation. In recent years, industry has gone through major changes, driven by electrification, digitalization, and increasingly stringent environmental regulations.

The automotive market is valued at trillions of dollars and continues to evolve. In 2023, the industry experienced growth due to the post-pandemic recovery and the rising demand for electric vehicles (EVs). Major economies, including the United States, China, and Europe, lead vehicle production and consumption:

- **Passenger vs. Commercial Vehicles**: The market is segmented between consumer cars and commercial vehicles, with growing demand for electrified transport solutions.
- **Electric Vehicles (EVs):** The shift toward EVs is accelerating due to government incentives and battery innovations.

Stricter CO_2 emission regulations are pushing manufacturers to ramp up battery electric vehicle (BEV) production to avoid heavy fines. Meanwhile, the limited supply of critical materials like lithium for batteries presents a major challenge. To address this, companies are investing in recycling and more sustainable sourcing solutions, with a strong focus on solid-state batteries.
The industry is characterized by an oligopoly of major manufacturers with global supply chains. Some of the key players include:

- **Traditional Automakers**: Toyota, Volkswagen, General Motors, Ford
- **New Entrants and Innovators**: Tesla, Rivian, Nio, Lucid Motors
- **Component Suppliers**: Bosch, Continental, Magna International

Competition is influenced by technological innovation, supply chain efficiency, and the ability to adapt to environmental regulations.

Trends: Innovation and Emerging Technologies

In recent years, the automotive industry has undergone an unprecedented transformation driven by three major trends: electrification, software integration, and autonomous driving.

Global sales of electric cars will exceed 17 million units in 2025, with an annual growth of 27%. The market leaders are BYD and Tesla. Solid-state batteries are a major investment, offering longer battery life, faster charging, and greater safety than traditional batteries. Ford has two new EV models in the pipeline: one is a commercial van, planned for 2026, and one is an accelerated pickup for 2027. Ford's partnership with Solid Power, an industry leader in developing solid-state batteries, started in 2021, however, it is planned to stop in 2025.

At the same time, cars are moving from systems with multiple electronic control units to a single software system, allowing remote updates (OTA). This will create new revenue for single software driven systems. Ford expects to earn $20 billion from software by 2030 (partnership with Google started in 2023 to embed Android softwares in the car and enhance customer experience).

Finally, fully autonomous cars for consumers are still far away, but robotaxis are already operational in some

US states and China. Mercedes-Benz is the first car manufacturer to be certified for Level 3 autonomous driving in California and Nevada. Artificial intelligence will be central to sensors, mapping and energy efficiency. By 2027, 12% of new cars will have advanced autonomous driving technology.
Ford offers BlueCruise, an advanced driver-assistance system that enables hands-free driving on pre-mapped highways. The latest version was launched in september 2024.

While Ford is competitive and forward-looking when it comes to software integration, connected vehicles and software monetization, its position on the other macrotrends remains precautious and conservative, especially with respect to other competitors like Mercedes, General Motors, BYD and Tesla.

Trump's Trade Policy and their Impact on Ford

Trump has announced a 25% tariff on imports from Mexico and Canada, including vehicles and automotive components. This could increase production costs for Ford, which operates manufacturing plants in these countries, potentially leading to higher consumer prices and reduced competitiveness. For example, the tariffs are expected to drive up vehicle prices, adding an estimated $2,700 to the average car price in the U.S. Indeed, Ford is at least exposed because it imports the smallest share of vehicles from outside the US*.

The imposition of a 25% tariff on imported steel and a 10% tariff on aluminum could drive up raw material costs for automakers. Ford CEO Jim Farley has expressed concerns about these measures, stating that they could introduce "costs and chaos" into the industry**.

Trump has indicated plans to reduce or eliminate federal.

incentives for electric vehicle purchases, such as the tax credits provided under the Inflation Reduction Act. This move could slow EV adoption in the U.S. and negatively affect Ford's electrification strategy, in which the company has invested heavily. While some details remain uncertain, he has already taken steps to roll back Biden's goal of reaching a 50% EV market share.
However, while these policies could have major consequences, there is still no certainty about when and how these tariffs will be implemented, as discussions are still ongoing between countries (for example, between the U.S. and Europe). This uncertainty presents a significant challenge for automakers, as they must carefully evaluate investments that require both time and money.

PORTER FIVE'S FORCES ANALYSIS – CAR INDUSTRY AND FORD

1. **Competitive Rivalry**: High

- The global automotive industry is highly competitive, with many players who are usually very big in size, like General Motors, Tesla in the US and internationally Toyota, Volkswagen,
- Ford competes on price, innovation, brand reputation, and fuel efficiency with most of the traditional companies (like GM on which they mainly compete on the truck's line of vehicles).
- The rise of electric vehicles (EVs) intensifies competition, as Ford must compete with established EV leaders like Tesla and emerging EV startups.
- High fixed costs (factories, R&D, supply chains) make prices higher but of course the price can't be raised too much to stay competitive.

2. Threat of New Entrants: Moderate to Low

- High capital requirements for manufacturing plants, supply chains, and R&D act as a strong barrier.
- Established brands like Ford have strong dealer networks and brand loyalty, making it difficult for new entrants to gain market share, indeed vehicle brand retention for US customers was 52.5% as on June 2024 (1), highlighting that once a person gets a car of one brand it will keep purchasing that one throughout its life.
- However, EV startups, including Chinese brands, are disrupting the industry with innovative business models and innovative products that tend to satisfy the increased demand for sustainability concerns.
- Government incentives for EVs and greener car parts and production may lower entry barriers for new companies, but scaling up remains difficult.

3. Bargaining Power of Suppliers: Moderate

- Ford relies on a global supply chain for parts like semiconductors, batteries, and steel.
- The 2021-2023 chip shortage exposed Ford's dependency on a few key suppliers, for example S&P Global Mobility estimates that in 2021 more than 9.5 million units of global light-vehicle production was lost as a direct result of a lack of necessary semiconductors,
  with the third quarter of 2021 experiencing the largest impact with an estimated volume loss of 3.5 million units.
- Large automakers like Ford can negotiate better terms due to bulk purchasing.
- For more sophisticated and ad hoc supplies for some parts of the vehicles, suppliers have more bargaining power as there are just a few specialised, an example for Ford may be the carbon fiber panels used in high performance models.

4. Bargaining Power of Buyers: High

- Consumers have many alternatives when it comes to choosing a car (traditional gas-powered cars, EVs, hybrids)
- The rise of direct-to-consumer models (Tesla) gives buyers more choices outside of traditional dealerships, which increase the prices
- Price sensitivity is high, and buyers expect new and frequent innovations in technology such as fuel efficiency and autonomous driving features which may be accepted as a justification of the higher price
- Government incentives for EVs can influence buyer preferences, pushing Ford to invest more in its EV lineup.

5. Treat of Substitutes: Low

- It is difficult to find something that is able to have the same performance and attributes of cars, so instead of having the threat of products substitute in the car industry we have the threat of the attributes of the product substitute. Two examples are EV and technology.
- EV adoption is a major substitute for traditional petrol vehicles, forcing Ford to accelerate its EV transition, at the moment Ford has some EV in its product mix, both SUVs and trucks, but they should accelerate the rate of developing new EVs even more due to the fast pace.
- Ford must innovate to differentiate itself, such as investing in autonomous vehicles, connected car technology, and fuel-efficient models. Ford is ahead in implementing technology in their vehicles such as connectivity and systems to assist the drive such as security systems.

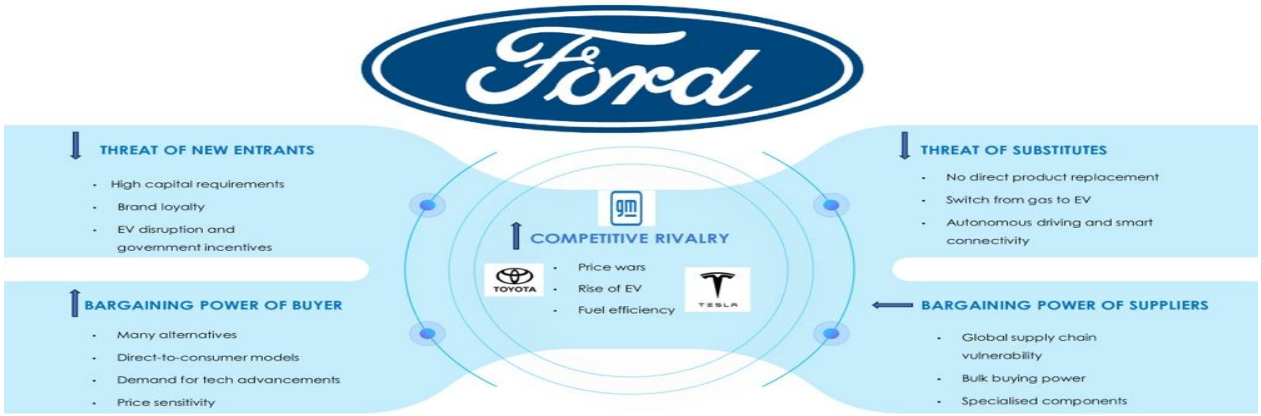

Figure 3: Porter Five's Forces

SWOT ANALYSIS

Strengths

1. **Brand loyalty** → The company's large customer base helps secure continuous customer flow and sales, in addition to stabilization of sales. Considering the introduction of tariffs by the Trump presidency, costs of production will increase, as well as consumer prices. However, the strong brand reputation ensures mitigation of this effect, still enhancing gross margin and net cash flow over time.
2. **Vast dealer network and global presence** → An extensive dealer network allows Ford to reach a wide clientele and market to maintain steady flows of revenues. Nevertheless, while on the one hand, the imposition of tariffs on components coming from both Canada and Mexico will boost the princess in some regions, on the other the broad and strong presence eases the shock and sustains global market penetration.
3. **Solid financial position for investment opportunities** → The company's strong balance sheet and financial reserves allow for substantial investments in innovation such as in EV technologies, even though it means facing the ongoing increase in steel, aluminum, and imported components due to tariffs. This flexibility leads to independence on external financing resources, absorption of expenses, and sustainability of long-term positive net income and cash flow.
4. **Diverse Product Portfolio** → Ford offers a wide variety of products (vehicles) that reach different customer segments, thus ensuring revenues, gross margin, and profits. While its decreasing demand for EVs might slow its growth and advantages in the industry in the next years, the uninterrupted demand for SUVs and utility cars will continue to drive revenues, support the company's profitability, and slow down the risks and losses incurred in the EV sector.

Weaknesses

1. **Brand perception** → Ford's legacy may tumble in the coming years due to a generational shift in the demand of young consumers, leading to lower sales and income. Due to the anticipation of federal EV incentives further challenging the EV strategy of the business, the future weak perception of the brand might lead to difficulties in shifting consumer needs towards sustainability (Electric Vehicles). The lack of a modern, tech-focused reputation will reduce brand equity, affecting profitability and gross margin.

2. **Vast dealer network** → A broad dealer network not only enriches the company but creates also challenges in maintaining quality service standards worldwide. The higher tariffs increase export prices, and enhance competitiveness across global markets, straining profitability, an impacting net income negatively.

3. **Low portfolio diversification for EVs (low attractiveness)** → Its narrow range of EV options makes it harder for Ford to compete in the new vehicle industry, which is facing a fast-evolving phase. The lower attractiveness in the EV sector, coupled with the potential reduction or elimination of federal EV tax credits, leads to a weaker expansion of Ford in its EV offering, inducing lower investor confidence, potential lower stock valuation, and cash flow challenges.

Opportunities

4. **Strategic partnerships with e-tech companies/start-ups** → Collaborations with technology startups or established e-tech firms could accelerate the market penetration and expansion into the EV sector, in addition to reducing R&D expenses. These partnerships may reduce the costs of tariffs introduced with the new policies while spurring new revenue channels, strengthening Ford's financial position and future net income.

5. **Investing in autonomous vehicles** → Investing in self-driving vehicles can unlock new market segments and revenue opportunities in the long term. Even if the rising material prices may put pressure on short-term margins, the production of autonomous vehicles could position Ford as an innovation leader in the future, owning a great share of the new market and improving its profitability.

Threats

6. **Intense global competition** → In markets such as China, where local brands of manufacturers of Electric Vehicles are well-established, market penetration is areal struggle due to Ford's low desirability of this type of vehicle. In addition to low attractiveness, the higher costs from tariffs diminish its competitive pricing strategy. The only solution for the company is to expand toward a new international market where the EV demand is low to improve operational efficiency.

7. **Government regulations for sustainability** → Strict emission regulations require costly compliance investments, impacting cash flow and profit margins. Failure to meet sustainability standards may lead to fines and reduced brand appeal, hurting revenue and net income. Furthermore, the imposition of a 25% tariff on key imports and additional tariffs on raw materials significantly aggravate production costs.

FINANCIAL PERFORMANCE

Introduction

Any group of stakeholders (such as investors, management, employees, government, …) are interested in a company's financial health over a given period, especially if a colossus as Ford Motor Company is considered. How well can the enterprise generate revenues or manage its assets/liabilities?

Starting with this question, it is clear which role financial KPIs play: these are grouped into several categories, including profitability, liquidity, solvency, efficiency and valuation.
Not only are they exploitable for understanding financial performance, but they also give an insight of growth and progress, risks and opportunities of a business, beyond that they are fundamental to make informed decisions.

Shares for Ford Motor Company

The Common Stock is listed on the New York Stock Exchange in the United States of America.
As of February 2025, Ford Motor Company's stock is trading at $ 9.35 per share. However, over the past week, the stock has experienced a decline, determined by the outlook for 2025 and concerns over potential impacts from new tariffs (profit may fall by $ 2 billion or even more).

The total of Common Stock amounts to 3,89 billion; on the other hand, the company also holds 70,85 million of Class B Stock. Looking at the differences between these two stocks, the Common one is publicly traded, offers one vote per share and its price is based on supply and demand.
Inversely, each Class B share detains greater voting power, is not available to the public and is mostly held by the Ford family members (in order to preserve family influence over corporate governance).

As regards the aggregate market value of Common Stock, this has been quantified at $ 38,5 billion.
It is possible to compare the cumulative total shareholder return on Ford's Common Stock with the total return on the S&P 500 Index and the Dow Jones Automobiles & Parts Titans 30 Index from 2021 to 2024. After having a significantly higher shareholder return in 2021, the company is experiencing a decline, which in 2024 is highly marked, compared to the broader market.

To conclude, a regular dividend of $ 0.15 per share has been announced in February 2025, along with a supplemental dividend of $ 0.15 per share. In addition, a repurchase program has been followed for $ 36,43 million, in order to offset the impact of stock-based compensation.

Gross Profit Margin and Operating Margin

The gross profit margin consists in the ratio between gross income and sales, expressed in percentage. Therefore, it indicates the profitability of the company's core business (more simply said, it measures how much money a company keeps from its sales after paying for direct costs of making its products).

Every industry has its own benchmark in relation to gross margin. Looking at the last few years, Ford Motor Company has had its highest peak in FY 2021, reaching 12,1%. The most significant drop can be seen between FY 2019 and FY 2020 (pandemic-related reasons).
In addition, after recovering in FY 2021, a decline can be noticed from year to year, reaching 8,4% in FY 2024 (lower than the automotive industry benchmark, which is at around 12,45%).
This trend can be seen in the whole automotive industry in recent years (another sign of the ongoing "crisis"): reasons may lie in the decrease of customer demand and the growing pressure to lower prices.

Also known as return on sales, the operating margin measures revenue after having paid off all operating expenses; the formula consists in a ratio between operating income and revenue. A negative phase has been experienced by Ford in 2020 (-3.5; due to the pandemic and high costs), then a peak has been reached in 2022 (11.7). However, in the last few

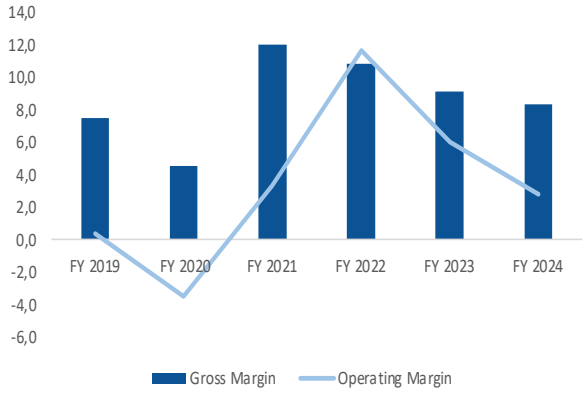

Figure 4: Gross and Operating Margin

years, there has been a constant decline (probably caused by lower demand, rising costs and external events). Overall, Ford's operating margin seems to be volatile and continually worsening.

According to Ford Q4 2024 Earnings Press Release, Ford's revenue increased to $185 billion, with net income of $5.9 billion, adjusted EBIT of $10.2 billion, and operating cash flow of $15.4 billion. The company also generated adjusted free cash flow of $6.7 billion.

Looking ahead to 2025, the company expects adjusted EBIT to be between $7.0 billion and $8.5 billion, adjusted free cash flow to range from $3.5 billion to $4.5 billion, and capital spending to be between $8 billion and $9 billion.

Capital Structure

As of December 31, 2024, Ford motor company's capital structure is significantly weighed towards debt.
Indeed, their total debt amounts to 158,5 billion of dollars while their total equity amounts to 44,8 billion of dollars. The company's debt-to-equity ratio stands at 3,54 which is a high ratio compared to major competitors in the automotive industry, such as Tesla or General Motors Co.
This high debt to equity ratio can indicate greater financial leverage but also increases financial risk.

Selected Financial Data (US$ in millions)	
Debt payable within one year	54.949
Long-term debt payable after one year	103.573
Total debt	158.522
Equity attributable to Ford Motor Company	44.835

Solvency Ratio	
Debt to equity	3,54

Debt to Equity Competitors	
Debt to equity - General Motors	2,06
Debt to equity - Tesla	0,11

Figure 5: Selected Financial Data

Liquidity Ratio

To establish liquidity ratios, it is important to define what they are and how they are calculated. Liquidity ratios measure a company's ability to pay debt obligations.

Current ratio measures a company's ability to pay short term obligations with short term assets. In this case, Ford's current ratio is 1.16, indicating that the company has more current assets than current liabilities. The auto industry has a low current ratio because manufacturers operate with high working capital needs and rely on short-term liabilities like supplier credit and financing programs.

Quick ratio assesses a company's ability to meet short-term obligations with its most liquid assets. Ford's quick ratio is approximately 1.03, which suggests that Ford can cover its short-term liabilities without relying on the sale of inventories, suggesting efficient inventory management.

Those liquidity ratios indicate that Ford is able to sustain their short-term obligations but it is not excessively liquid since above 1, if they were below 1, there could be a liquidity risk. Note that if the ratio were significantly higher, it might indicate excess cash or inefficient use of resources.

Profitability

Ford Motor company reported a net income of 5.9 billion dollars. Ford's 2024 profitability reflects modest margins and high financial leverage. A gross profit margin of 8.26% suggests decent cost control, but the operating margin of 3.02% indicates high expenses. The net profit margin of 3.40% remains constrained by interest costs, aligning with Ford's high debt-to-equity ratio of 3.59.
While a 13.11% ROE shows solid returns for shareholders, the low 2.06% ROA highlights inefficiency in utilizing assets, likely due to heavy debt reliance. With losses in its EV segment and expected earnings decline in 2025, Ford faces profitability challenges despite its strong commercial vehicle division.

Return on Sales	Value (%)
Gross profit margin	8,26
Operating profit margin	3,02
Net profit margin	3,4
Return on Investment	
Return on equity (ROE)	13,11
Return on assets (ROA)	2,06

Figure 6: Profitability Ratios

Ford's modest profitability reflects EV losses, high fixed costs, and competitive pricing pressures. While strong cash flow keeps the company stable, its challenge is boosting margins either by making EVs profitable or increasing efficiency in its ICE and hybrid businesses.

Interest Coverage Ratio

The Interest Coverage Ratio (ICR) measures a company's ability to cover its interest expenses using its operating profits. For Ford, the ICR in 2024 is 4,6 calculated as the ratio between EBIT (Earnings Before Interest and Taxes)**,** which amounts to **$**4,8 billion, and the interest expenses incurred during the period, totaling **$**1,03 billion. An ICR above 3-4 generally indicates strong financial stability, while a value below 1.5-2 may signal potential difficulties in covering interest payments. Ford's reported ICR suggests that the company Ford has strong interest coverage.

Looking at the trend over time, Ford's ICR increased overall from 2019 to 2024, with a particularly sharp rise in 2022, reaching a peak of approximately 14. This surge was primarily driven by an extraordinary increase in EBIT, which jumped from $3.8 billion in 2021 to $17.5 billion in 2022. However, this growth was largely influenced by one-time special items recorded in 2022, including:

- A $7.4 billion mark-to-market loss on Ford's investment in Rivian.
- A $2.7 billion impairment charge related to the Argo AI autonomous vehicle venture.
- Other restructuring and global realignment costs, such as the suspension of operations in Russia.

These special items significantly affected Ford's financial statements, leading to negative operating expenses in 2022 and inflating the EBIT figure. As a result, the ICR for that year was artificially high and does not necessarily indicate a proportional improvement in Ford's ability to generate sustainable operating income.

Notably, in 2020, Ford recorded a negative ICR, reflecting the severe impact of the COVID-19 pandemic, which led to reduced sales, production shutdowns, and lower profitability across the automotive industry.

In the following years, 2023 and 2024, the ICR gradually declined, stabilizing at 4,6 in 2024, suggesting a return to more typical levels of profitability and interest coverage.

In summary, while the Interest Coverage Ratio reflects Ford's ability to manage debt obligations, the exceptional peak in 2022 was primarily driven by accounting adjustments rather than operational performance. This highlights the importance of considering both core business trends and one-time financial events when evaluating a company's financial health.

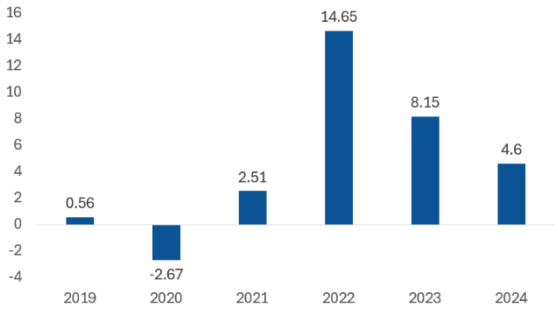

Figure 7: Interest Coverage Ratio

Free Cash Flow

Ford reported a free cash flow of approximately $6.8 billion dollars. This positive free cash flow underscores Ford's capacity to generate sufficient cash to support its strategic initiatives and shareholder returns.

Ford's ability to generate positive FCF while investing in the EV transition demonstrates financial resilience. It remains competitive with GM and ahead of struggling EV startups, but lags Tesla in cash efficiency due to its higher cost structure. The key challenge will be maintaining FCF while improving profitability in its EV segment.

VALUE AT RISK – HISTORICAL APPROACH

Value at risk, or shortly VaR, is risk management tool used for measuring the downside risk of an investment instrument, by quantifying a highest potential loss with given probability – confidence level. For the purpose of this report, the historical approach is used for calculating the VaR. We used closing prices of the past two years, calculating the daily returns, and sorting the dataset from worst one day return to the best. The VaR is calculated for three different confidence levels – 90%, 95% and 99%. Based on the analysis, the maximal daily loss suffered by the stockholders with 99% probability will not surpass 7.1%. In other words, over the course of 100 trading days, we should not experience daily loss higher than 7.1% more than once. To extrapolate weekly and monthly VaR based on daily VaR, product of VaR and the square root of trading days in the respective time frame is used.

Confidence Level	Daily VaR	Weekly VaR	Monthly VaR
99%	-7.10%	-15.87%	-32.52%
95%	-3.45%	-7.72%	-15.82%
90%	-2.41%	-5.39%	-11.05%

Figure 8: Daily, Weekly and Monthly VaR for given confidence levels

One of the major shortcomings of the Value at Risk is the lack of information provided by the model in case of an extreme event not captured in the predefined confidence level.

To partially overcome this tail risk, the VaR model is complemented by the Expected shortfallmeasure, providing average loss in the left tail beyond the VaR model. The Expected Shortfallis, same as VaR, based on historical performance of the Ford stock. For insta nce, for 95% VaR, we can expect an average daily loss of 5.67% in the worst 5% trading days.

Confidence Level	Expected Shortfall
99%	-10.83%
95%	-5.67%
90%	-4.31%

Figure 9: Expected Shortfall

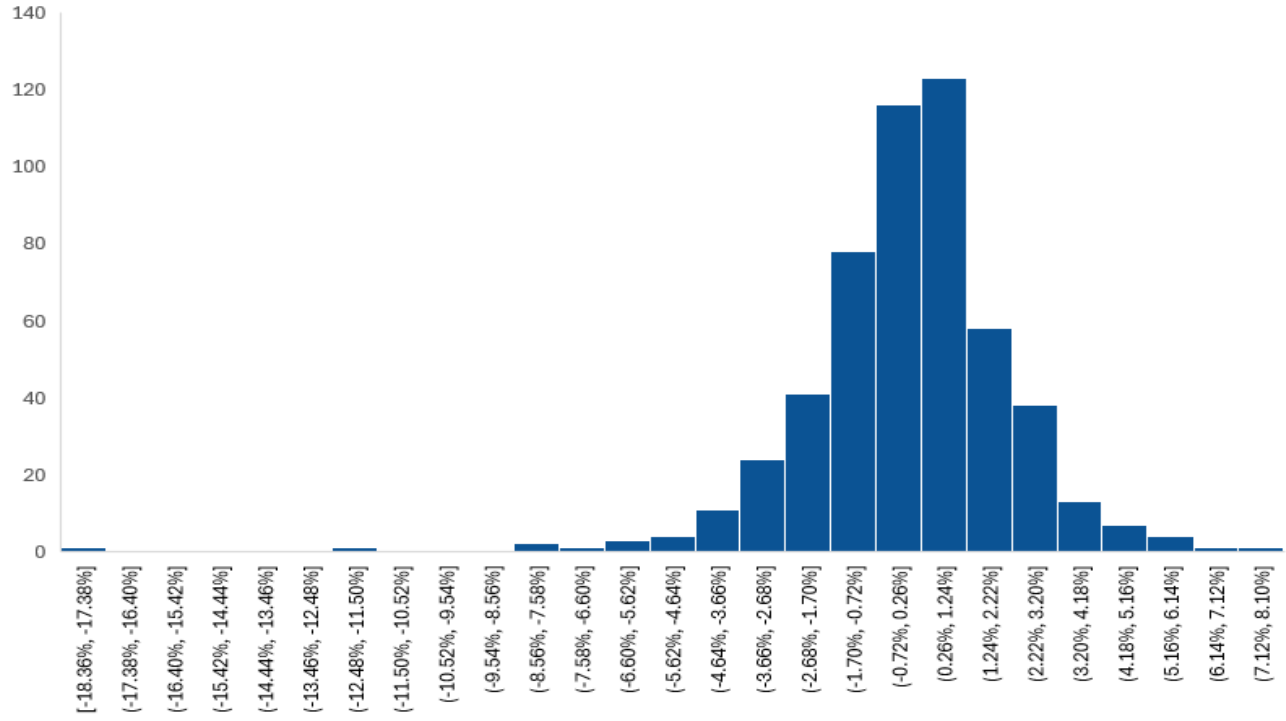

Figure 10: Historical stock return distribution 2023-2025

MONTE CARLO SIMULATION

The Monte Carlo simulation is a return prevision model based on historical data. In this model we have computed 10 000 iterations, using a standard deviation of 0.3, which has been adjusted for qualitative analysis. While the stock return was calculated from its 5-year average quarterly return, which is: 2.17%. Then we calculated the mean, median, max and min of the projections which resulted as follows:

Quarterly Returns	
Mean	2.5%
Median	2.3%
Max	38.3%
Min	-39.7%

Figure 11: Estimated Returns

It has to be noted that the following Monte Carlo simulation, assumes a normal distribution, which implies that the distribution has tight tails, with a kurtosis of 3, which highlights the limitation of the model to predict extreme outcomes. In addition to this the distribution of financial returns is typically skewed, meaning that the left and right tails of the distribution are not mirror images of each other. In real-world stock prices or financial returns, there's often negative skewness, meaning that large negative returns (losses) are more common than large positive returns (gains). The normal distribution assumes symmetry, which is rarely the case in financial markets.

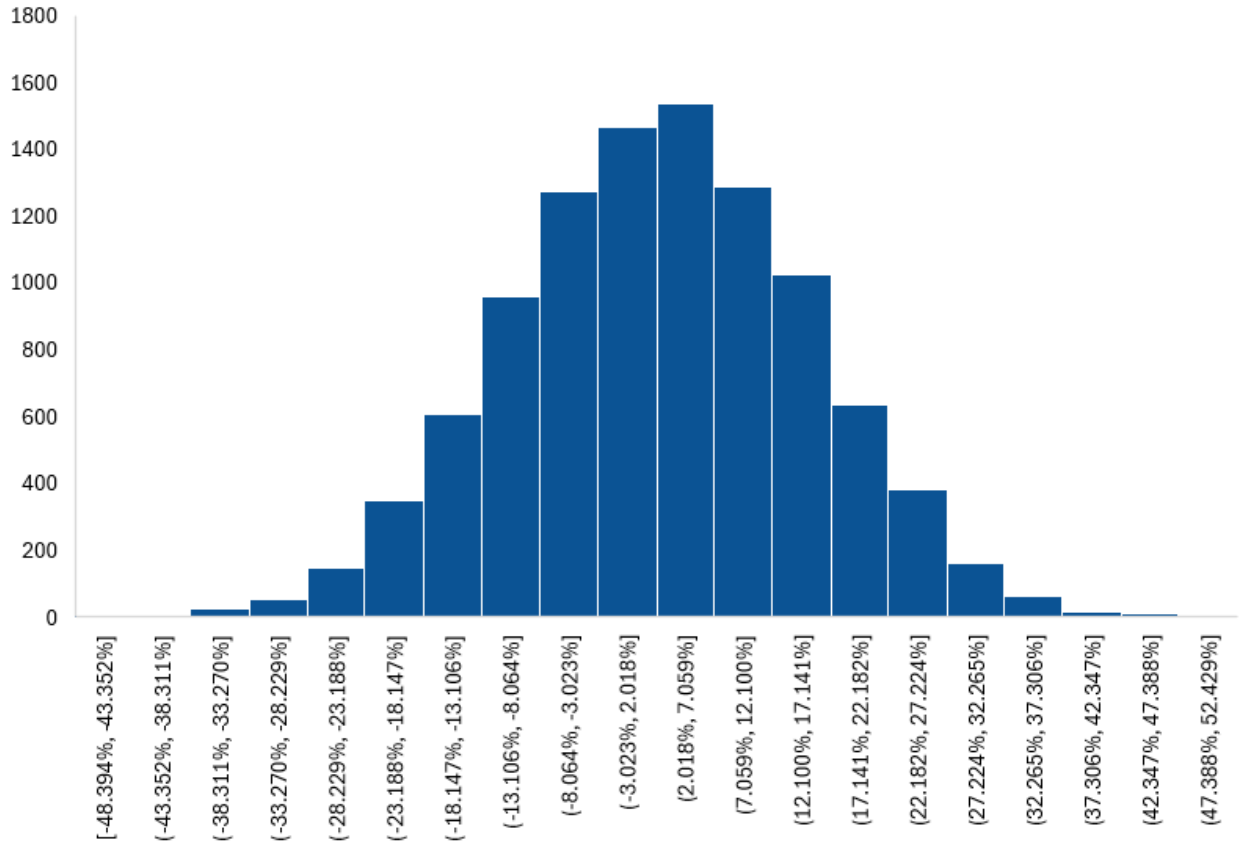

Figure 12: Distribution of 10 000 simulated stock returns

VALUATION

This valuation analysis employs two distinct models: a Discounted Cash Flow (DCF) model with a 5-year projection horizon and a comparative analysis that considers various comparable multiples.

MULTIPLES VALUTATION

To better understand Ford's implied share value, we conducted a comparative analysis with competitors in the automotive sector. This analysis, based on multiples such as EV/Revenues, EV/EBITDA, and P/E, helps us assess Ford's performance and valuation relative to its rivals.

As shown in the graph above, we selected five competitors to compare with Ford: General Motors Company (NYSE: GM), Tesla, Inc. (NASDAQ: TSLA), Lucid Group (NASDAQ: LCID), Harley-Davidson, Inc. (NYSE: HOG), and Rivian (NASDAQ: RIVN), its main rivals in the automotive sector. Ford's ratios are generally in line with those of its competitors, except for Tesla's exceptionally high values. This suggests that Ford's Enterprise Value, and consequently its Equity Value, is consistent with its actual market value, neither significantly overvalued nor undervalued. Moving on to the calculations, we used a dynamic Excel model based on financial data from the 2024 statements of each company. The table below presents the results derived from the previously mentioned valuation multiples, including the high, low, 75th percentile, 25th percentile, and average values from the comparable companies.

The image provides a detailed analysis of Ford's implied share price, calculated in the previous paragraph to be $10.65. This value is derived using the discounted cash flow method, while the image illustrates the dispersion of share prices obtained through different valuation approaches. The price dispersion
is categorized into several ranges, highlighting the variability in estimated share prices based on different financial metrics and assumptions. The first set of values, derived from the EV/Revenues ratio, ranges from -0.1 to 190.5, indicating a broad spectrum of potential prices. The second set, based on the EV/EBITDA ratio, spans from -28.5 to 190.1, reflecting an even wider range. The third set, using the P/E ratio, presents values from 7.9 to 395.6, with some estimates significantly exceeding the implied share price. This analysis underscores the importance of using multiple valuation approaches when assessing Ford's share value. The wide range of estimates suggests that different methodologies and assumptions can lead to substantially varied outcomes, offering a comprehensive perspective on potential stock price scenarios. This information is crucial for investors and analysts to evaluate the risks and opportunities associated with Ford's shares.

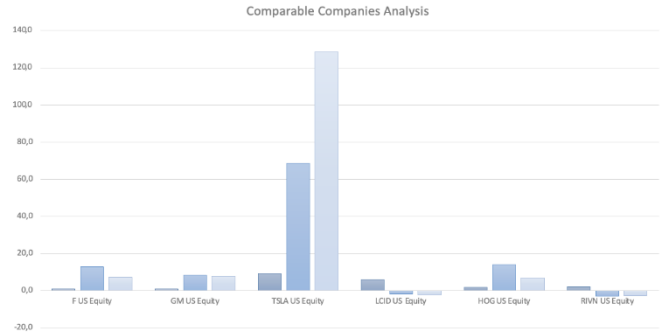

Figure 13: Analysis vs Comparable Companies

Figure 14: Price Dispersion

DISCOUNTED CASH FLOW MODEL VALUTATION

Following the establishment of key assumptions, we calculated the company's Beta with a regression analysis, determining it to be 1.1483, consistent with Bloomberg's estimate. Next, we derived the discount rate or Weighted Average Cost of Capital (WACC). Starting with the risk - free rate (based on the U.S. 10 Year Treasury), and utilizing the previously computed Beta, we calculated the cost of Equity. By incorporating the weighted cost of debt, we calculated a WACC equal to 6.57%. For debt, we used net debt (offset by cash) and market-based equity value, while other key variables were sourced from Prof. Damodaran's comprehensive data tables.
We then calculated the Discounted Cash Flows and Terminal Value, with the latter being determined using the formula:

$$TV = \frac{FCFn \times (1 + g)}{(r - g)}$$

Beta	1.221432
Adj. Beta	1.148359

Figure 15: Beta and Adjusted Beta

Finally, after summing all discounted values and making necessary adjustments (such as for minority interests and net debt), we determined the company's fair equity value to be $42.208 billion. Dividing this by the total number of outstanding shares (3 963 million), we estimate the fair value per share to be $10.65.

Insigths

This valuation suggests the company is currently undervalued compared to the last close price of $9.48 as our valuation results in an implied shared price of $10.65, presenting a potential investment opportunity.

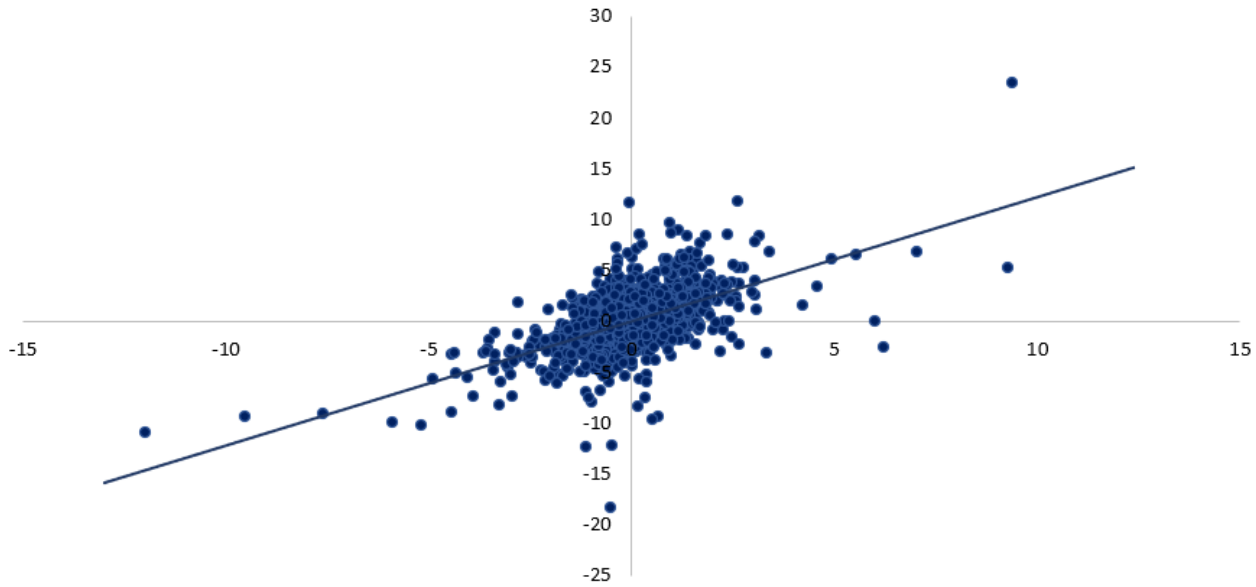

Figure 16: Beta Regression

APPENDIX

WACC		
Risk-free rate	4.57%	10Y US GOV
Equity market risk premium	5.38%	Bloomberg
Company estimed equity beta	1.1483	(5Y Daily)
Cost of equity	10.75%	
Company estimeted pre-tax cost of debt	6.81%	Bloomberg
E/(E+D)	19.60%	
D/(E+D)	80.40%	
Tax rate	18.51%	
WACC	6.57%	

Figure 17: Weighted Average Cost of Capital

Balance Sheet Items	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E
Total Assets	255 884	273 310	285 196	290 900	296 718	302 652	308 705	314 879
% growth		*6.81%*	*4.35%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*
Total Current Assets - excl. Cash	72 406	81 310	86 126	85 569	88 386	90 192	91 587	93 684
% growth		*12.30%*	*5.92%*	*-0.65%*	*3.29%*	*2.04%*	*1.55%*	*2.29%*
% of t/a	*28.30%*	*29.75%*	*30.20%*	*29.42%*	*29.79%*	*29.80%*	*29.67%*	*29.75%*
Total Non-Current Assets	139 408	151 829	160 722	161 341	165 538	169 089	171 971	175 667
% growth		*8.91%*	*5.86%*	*0.38%*	*2.60%*	*2.14%*	*1.70%*	*2.15%*
% of t/a	*54.48%*	*55.55%*	*56.35%*	*55.46%*	*55.79%*	*55.87%*	*55.71%*	*55.79%*
Total Current Liabilities - excl. ST Debt	46 298	51 381	51 352	53 233	54 502	55 157	56 485	57 613
% growth		*10.98%*	*-0.06%*	*3.66%*	*2.38%*	*1.20%*	*2.41%*	*2.00%*
% of t/a	*18.09%*	*18.80%*	*18.01%*	*18.30%*	*18.37%*	*18.22%*	*18.30%*	*18.30%*
Total Non-Current Liabilities	115 851	128 981	133 479	135 045	138 882	141 270	143 966	147 068
% growth		*11.33%*	*3.49%*	*1.17%*	*2.84%*	*1.72%*	*1.91%*	*2.15%*
% of t/a	*45.27%*	*47.19%*	*46.80%*	*46.42%*	*46.81%*	*46.68%*	*46.64%*	*46.71%*
Total Equity	43 167	42 798	44 858	46 794	46 955	48 061	49 177	49 997
% growth		*-0.85%*	*4.81%*	*4.32%*	*0.34%*	*2.36%*	*2.32%*	*1.67%*
% of t/a	*16.87%*	*15.66%*	*15.73%*	*16.09%*	*15.82%*	*15.88%*	*15.93%*	*15.88%*

Figure 18: Balance Sheet

Income Statement Items	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E
Revenue	158 057	176 191	184 992	169 836	171 872	171 345	178 982	188 887
% growth		*11.47%*	*5.00%*	*-8.19%*	*1.20%*	*-0.31%*	*4.46%*	*5.53%*
EBIT	18 448	10 605	5 219	5 777	6 708	6 888	7 367	8 818
% of sales	*11.67%*	*6.02%*	*2.82%*	*3.40%*	*3.90%*	*4.02%*	*4.12%*	*4.67%*
% growth		*-42.51%*	*-50.79%*	*10.69%*	*16.13%*	*2.68%*	*6.95%*	*19.69%*
Taxes	-864	-362	1 339	364	423	434	464	556
% of EBIT	*0.00%*	*0.00%*	*25.66%*	*6.30%*	*6.30%*	*6.30%*	*6.30%*	*6.30%*

Figure 19: Income Statement

Cash Flow Items	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E
D&A	7 642	7 690	7 567	7 718	7 873	8 030	8 191	8 355
% of sales	*4.83%*	*4.36%*	*4.09%*	*4.54%*	*4.58%*	*4.69%*	*4.58%*	*4.42%*
% growth		*0.63%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*
CapEx	-6 866	-8 236	-8 684	-8 250	-8 330	-8 160	-8 113	-8 069
% of sales	*4.34%*	*4.67%*	*4.69%*	*4.86%*	*4.85%*	*4.76%*	*4.53%*	*4.27%*
% growth		*19.95%*	*5.44%*	*-5.00%*	*0.98%*	*-2.05%*	-0.57%	-0.55%
Change in NWC	26 108	3 821	4 845	-2 439	1 549	1 151	66	970
% of sales	*16.52%*	*2.17%*	*2.62%*	*-1.44%*	*0.90%*	*0.67%*	*0.04%*	*0.51%*

Figure 20: Cash-Flow Statement

DCF	2022A	2023A	2024A	2025E	2026E	2027E	2028E	2029E
Revenue	158 057	176 191	184 992	169 836	171 872	171 345	178 982	188 887
% growth		*11.47%*	*5.00%*	*-8.19%*	*1.20%*	*-0.31%*	*4.46%*	*5.53%*
EBIT	18 448	10 605	5 219	5 777	6 708	6 888	7 367	8 818
% of growth		*-42.51%*	*-50.79%*	*10.69%*	*16.13%*	*2.68%*	*6.95%*	*19.69%*
Taxes	-864	-362	1 339	364	423	434	464	556
% of growth			*-469.89%*	*-72.82%*	*16.13%*	*2.68%*	*6.95%*	*19.69%*
EBIAT or NOPAT	19 312	10 967	3 880	5 413	6 286	6 454	6 903	8 262
% growth		*-43.21%*	*-64.62%*	*39.50%*	*16.13%*	*2.68%*	*6.95%*	*19.69%*
D&A				7 718	7 873	8 030	8 191	8 355
% of growth				*2.00%*	*2.00%*	*2.00%*	*2.00%*	*2.00%*
CapEx				-8 250	-8 330	-8 160	-8 113	-8 069
% of growth				*-5.00%*	*0.98%*	*-2.05%*	*-0.57%*	*-0.55%*
Change in NWC				-2 439	1 549	1 151	66	970
Unlevered Free Cash Flow				7 320	4 279	5 174	6 914	7 578
Discount Factors				0.94	0.88	0.83	0.78	0.73
PV of UFCF				6 869	3 768	4 275	5 361	5 514
Sum of PV UFCF								25 787
TV								190 985
PV of TV								138 959
Enterprise Value								164 745
(-) Debt								160 862
(-) Minority Interest								23
(-) Preferred equity								0
(+) Cash								38 348
Equity Value								42 208
Outstanding Share								3 963
Implied Share Price								**$ 10.65**
Current Share Price								**$ 9.48**

Figure 21: Discounted Cash-Flow Model

Share Price Sensitivity Analysis

		Step
WACC	*6.57%*	0.50%
TGR	*2.50%*	0.50%

TGR \ WACC	$ 10.65	5.07%	5.57%	6.07%	6.57%	7.07%	7.57%	8.07%
	0.50%	8.73	4.70	1.39	- 1.37	- 3.70	- 5.71	- 7.44
	1.00%	12.95	8.02	4.07	0.83	- 1.88	- 4.17	- 6.13
	1.50%	18.36	12.17	7.33	3.46	0.28	- 2.38	- 4.62
	2.50%	35.50	24.51	16.61	10.65	6.00	2.27	- 0.79
	3.00%	50.28	34.29	23.51	15.76	9.92	5.36	1.70
	3.50%	74.50	48.79	33.10	22.53	14.93	9.20	4.73
	4.00%	121.42	72.56	47.34	31.95	21.58	14.12	8.50

Figure 22: Sensitivity Analysis

Comparable Companies Analysis (data in Million $)

		Market Data						Financials			Valuation		
Company	Ticker	Share Price	Shares Outstanding	Equity Value	Net Debt	Cash	Enterprise Value	Revenue	EBITDA	Net Income	EV/Revenue	EV/EBITDA	P/E
FORD MOTOR COMPANY (XNYS:F)	F US Equity	9.4	3 963	42 208	160 862	38 348	164 745	184 992	12 786	5 879	0.9	12.9	7.2
GENERAL MOTORS COMPANY (XNYS:GM)	GM US Equity	47.38	995	47 143	130 950	22 040	156 053	187 442	18 690	6 008	0.8	8.3	7.8
TESLA, INC. (XNAS:TSLA)	TSLA US Equi	284.65	3 189	915 582	13 620	36 560	892 642	97 690	13 030	7 130	9.1	68.5	128.4
Lucid Group (XNAS:LCID)	LCID US Equit	2.12	3 032	6 427	2 480	4 030	4 877	808	-2 710	-2 714	6.0	-1.8	-2.4
HARLEY-DAVIDSON, INC. (XNYS:HOG)	HOG US Equit	24.92	125	3 103	7 030	1 110	9 023	5 187	639	455	1.7	14.1	6.8
Rivian (XNAS:RIVN)	RIVN US Equit	11.51	1 131	13 388	5 010	7 700	10 698	4 970	-3 660	-4 747	2.2	-2.9	-2.8
High											9.1	68.5	128.4
75th Percentile											5.1	13.8	7.7
Average											**3.5**	**16.5**	**24.2**
Median											**1.9**	**10.6**	**7.0**
25th Percentile											1.1	0.7	-0.1
Low											0.8	-2.9	-2.8

Ford Motor Co Valuation	EV/Revenue	EV/EBITDA	P/E
Implied Enterprise Value	360 000	135 751	
Net Debt	160 862	160 862	
Cash	38 348	38 348	
Implied Market Value	237 486	13 237	41 151
Shares Outstanding	3 963	3 963	3 963
Implied Value Per Share	**59.9**	**3.3**	**10.4**

Figure 23: Multiples Valuation with Market Median

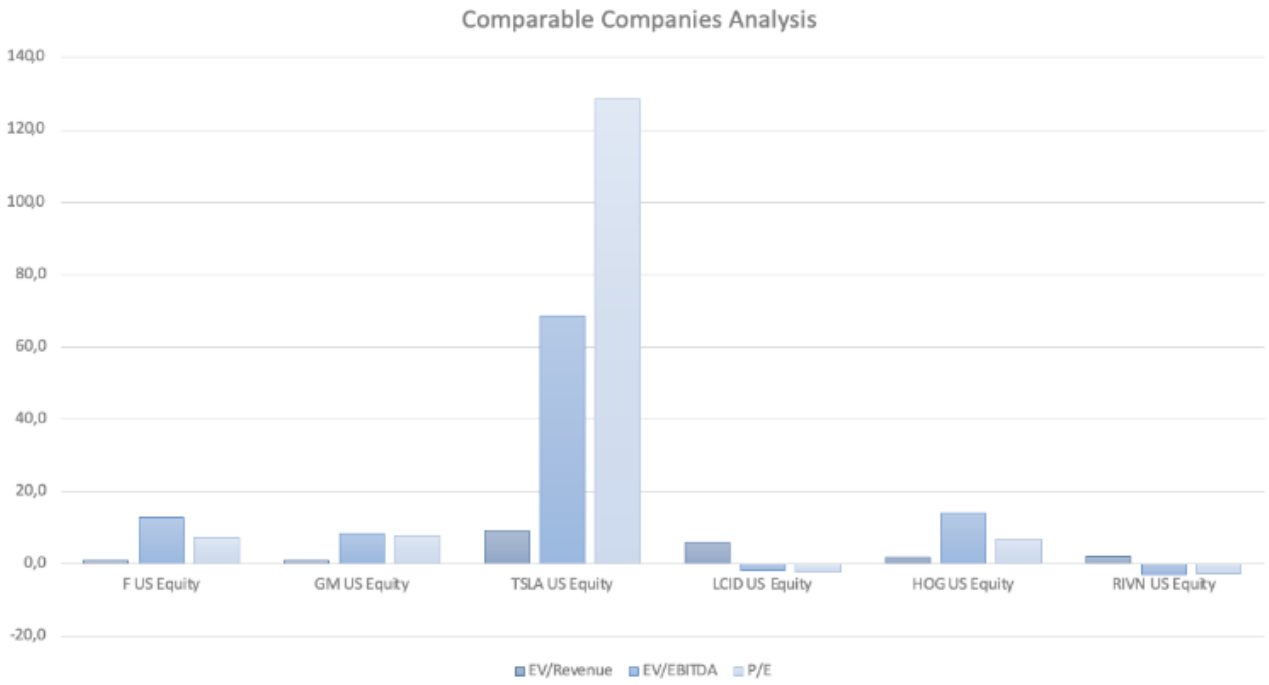

Figure 24: Analysis vs Comparable Companies

Figure 25: Price Dispersion

Disclaimer

The views expressed in this report are those of the members of the Cattolica Investment Club and cannot be associated with Università Cattolica del Sacro Cuore. Financial recommendations are provided solely for educational purposes. The Cattolica Investment Club, in the name of its president pro tempore and its associates, accepts no responsibility for any losses resulting from the implementation of the ideas presented in this report. We are not authorized to provide investment advice.
The information and estimates published reflect the Club's judgment at the time of publication and are subject to change without notice. The value of securities or financial instruments mentioned may fluctuate. The Club does not receive compensation nor has business relationships with any cited companies.
The content provided is for informational purposes only and does not constitute financial, legal, or tax advice. It is based on research conducted by Club members, but we do not guarantee the accuracy or completeness of the information. Users are advised to consult qualified professionals before making investment decisions. The Cattolica Investment Club, in the name of its president pro tempore and its associates, accepts no responsibility for losses or damages arising from the use of the information in this report.

CATTOLICA INVESTMENT CLUB
WHERE KNOWLEDGE TAKES YOU PLACES