A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

FIELD LAB – EQUITY RESEARCH ON FERRARI: Financial analysis and valuation

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Abstract

This thesis entails the creation of a Ferrari valuation model, achieved through a comprehensive analysis of the company's business segments, the underlying value drivers, industry trends, discounted cash flows, and sensitivity assessments. The current examination specifically focuses on the Engines and Sponsorship, Commercial and Brand segments, offering both an individual report and a consolidated view of the company’s shareholder structure, including its valuation, projections, discount rate, and value creation drivers.
The conclusive recommendation suggests a target price of € 353.00 per share by the conclusion of 2024, resulting in an anticipated overall return of 8.61%. Consequently, a HOLD recommendation is advised.

Keywords:

Ferrari
Valuation
Compound annual growth rate
Share price

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This report is part of the *Where Red meets Green. A manual shift for a sustainable Ferrari, and World* report (annexed), developed by Alexandre Duarte and Afonso Serrano and should be read has an integral part of it.

Table of Contents

Executive Summary

This in-depth analysis scrutinizes Ferrari N.V.'s investment landscape, emphasizing the company's valuation and financial analysis. As of 2023, the shareholder structure remains stable, with influential stakeholders like Exor N.V., Trust Piero Ferrari, BlackRock, and T. Rowe Price Group. Ferrari's unique loyalty voting structure is a strength, aligning management and shareholder interests for sustained brand integrity.

Financially, Ferrari's strategic initiatives, including dividends and share buybacks, reflect confidence in future growth. The detailed valuation explores key drivers, evaluating the company's resilience against market fluctuations.

The business unit's examination focuses on risks associated with the concluded Maserati partnership and shifts in Formula One engine supply arrangements. Ferrari's innovation in hybrid technology is a strength, aligning with industry trends, but the analysis underscores the potential impact on 2024 results due to altered partnerships.

Tax considerations, property investments, and capital expenditures are approached with a forward-looking perspective. Ferrari's adherence to the Patent Box tax regime and substantial land acquisitions supports its long-term vision.

The heart of the analysis lies in the valuation section, employing a robust DCF model. It provides a target price of €353.0 for 2024, supported by detailed forecasts of the Engines and Sponsorship, Commercial and Brand business units.

The macro-outlook highlights Ferrari's resilience against economic uncertainties, with an affluent customer base and inelastic demand. A detailed sensitivity analysis focuses on key inputs, while scenario analyses delve into potential upsides and downsides, painting a nuanced investment picture.

Investor consensus trends toward a HOLD recommendation, reflecting macroeconomic concerns and market multiples. Despite seemingly high earnings multiple, the analysis positions Ferrari with a modest upside of 8.61%, incorporating potential risks and strengths.

The researchers estimate a HOLD investment recommendation for Ferrari.

Source: Ferrari official logo 2023. Ferrari Official Website

Source: Ferrari F1-75 and 2023 season drivers, Charles Leclerc and Calos Sainz. Ferrari Official Website

Source: Ferrari headquarters in Maranello, Italy

Source: Ferrari Museum in Modena, Italy

Source: Ferrari World in Abu Dhabi

The Pinnacle of the Automotive Industry

Competition

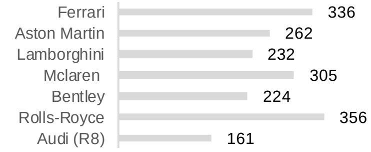
The luxury car market features a relatively small number of competitors, including major groups like BMW, Volkswagen, Stellantis NV, GM, among others. Independent manufacturers such as Ferrari, McLaren, and Aston Martin also provide competition. Historically, this market has consisted of two dominant sectors: entry-level cars (GT category), and sports cars that extend to the hypercar category with a track-focused build. To align with modern trends, sports utility vehicles (SUVs) have been introduced to the luxury car market. Ferrari, despite being a late entrant[1], had the SUVs reach their first customers earlier this year, which has eroded some of the GT car's market share[2].

As of 2021 (Table 1), Ferrari leads the scale in customer retention, with its peers averaging 53% in customer loyalty. New competitors are more formidable in the luxury and sports electric vehicle market, which most companies are exploring, but have not yet launched their first models (Table 2). A prime example is the RIMAC group, which recently partnered with Bugatti to shape the future of hypercars and electric automobiles[3].

Chart 1 and 2 illustrate Ferrari's position in relation to its closest rivals, with a robust combination of units and average price per car shipped. In the Sports category, Ferrari's closest competitors include Aston Martin, Lamborghini, McLaren, and Audi with its ending performance model[4], the Audi R8. In the Range category, which includes cars like the Ferrari Portofino, Roma, and the recently introduced Purosangue, Ferrari competes directly with companies such as Rolls-Royce, Bentley, Porsche, Aston Martin, and Mercedes.

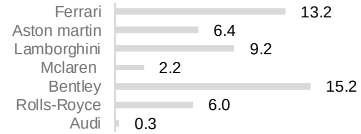
Undergoing a gradual transformation from being a sole manufacturer to positioning itself as a symbol of prestige and luxury, Ferrari benchmarks against well-established players such as Hermes, LVMH, and Burberry. However, it contends with significant margin pressures, primarily stemming from costs related to raw materials, R&D, specialized human capital, and infrastructure and equipment capital expenditures (CAPEX). These contribute to a growing gap between Ferrari and the current market leaders, as evident in the shift from earnings before interest, taxes, depreciation, and amortization (EBITDA, x-axis of Chart 3) to the operating profit margin (EBIT, y-axis of Chart 3).

Chart 1
Average Price per car
(Thousands€)



Source: Ferrari 2022 annual report

Chart 2
Units shipped in 2022
(Thousand units)



Source: Ferrari 2022 annual report

Table 1
Customer loyalty by leading brands

Brand	Current Year Loyalty	YOY Change
Ferrari	71%	5%
Aston martin	57%	18%
Lamborghini	38%	-21%
Mclaren	49%	-4%
Bentley	58%	0%
Rolls-Royce	43%	-1%
Audi	54%	-3%
Porsche	55%	-5%

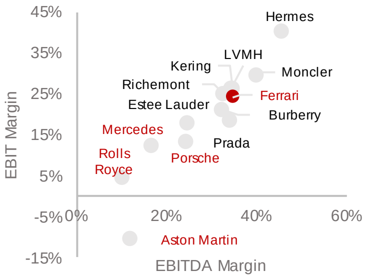
Source: CarEdge 2021

Table 2
EV Models developed by Ferrari's Peers

Brand	Launch	Model
Ferrari	2025	Undisclosed
Aston martin	2025	Undisclosed
Lamborghini	2028	Lazandor (SUV)
Mclaren	N/A	N/A
Bentley	2026	Bentayga
Rolls-Royce	2023	Spectre
BMW	N/A	N/A
Porsche	2024	Macan (SUV)

Source: Ferrari, Aston Martin, Lamborghini, Mclaren Bentley Rolls-Royce, Porsche communications

Chart 3
Competitor margins

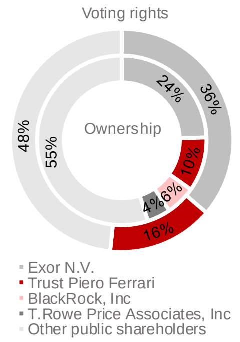


Source: Equity research valuation model

[1] Lauer, A. (2023, May 8). Ferrari's SUV bet has paid off, and then some. InsideHook. https://www.insidehook.com/autos/ferrari-purosangue-suv-bet-paid
[2] Automotive News Europe. (2023, May 5). Ferrari boosts earnings as wealthy pay more; Purosangue orders reopened. Automotive News Europe.https://europe.autonews.com/automakers/ferrari-q1-results-earning-rise-27-wealthy-pay-more
[3] Rimac Automobili and Bugatti begin operating under new company: Bugatti Rimac - Rimac Automobili. (2021, November 2). Rimac Automobili. https://www.rimac-automobili.com/media/press-releases/rimac-automobili-and-bugatti-begin-operating-under-new-company/
[4] Audi has announced that 2023 is the year ending the R8 era. The sports model which will replace it only has a forecasted launch year of 2029, and it will be an EV (RNEXT). Kacher, G. (2022, October 3). Audi's next R8 will be an EV called RNEXT: Sources. Car And Driver. https://www.caranddriver.com/news/a41293886/audi-rnext-ev-details/

Shareholder Structure

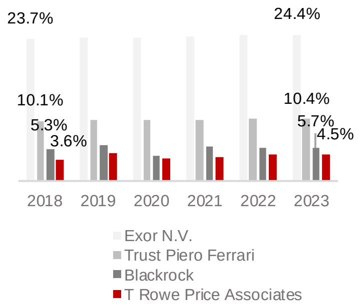
Chart 4
Shareholder structure



Source: Ferrari 2022 annual report

(Chart 4) Exor N.V.[5] holds the largest stake in Ferrari, with 24.4% ownership, investing across various sectors, including automotive, agriculture, and luxury goods[6]. As of February 13, 2023, Trust Piero Ferrari, a Jersey trust established by the son of Enzo Ferrari, Piero Ferrari, holds approximately 10.39% of the outstanding common shares, preserving the brand's heritage and values. BlackRock is the world's largest asset manager with 5.69% of ownership of Ferrari, known for its passive and index-tracking strategies. Lastly, T. Rowe Price Group, Inc. is a publicly owned global asset management firm based in the United States, recognized for its active and passive investment approach[7].

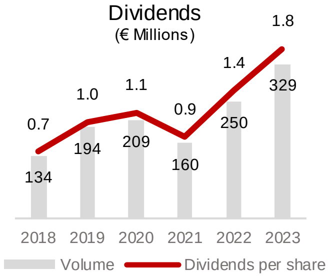
Chart 5
Shareholder structure
(in Percentage %)



Source: Ferrari annual statements 2018-2022

Ferrari's principal shareholders' participation has been constant, and slightly growing over time (Chart 5), which safeguards the price stability of Ferrari's stock and reemphasizes the long-term mindset of the institutional investors. They are also predominantly concentrated in Europe which will be key for the appropriate risk-free rate assumption later developed in this report. Shareholders can acquire special voting shares[8] by engaging with the loyalty voting structure, which is designed to reward long-term investors by splitting ownership of equity (Ownership, Chart 4), safeguarding strategic decisions and influence over the future of the company (Voting Rights, Chart 4). The current loyalty structure avoids conflicts of interest, as current members EXOR and Pierro Trust[9] have the majority of voting power (52% combined, Chart 4). Jointly, they preserve the historical values of Ferrari and prevent other shareholders, as in the case of Blackrock, from leveraging their equity position into prioritizing increasing results and margins over customer welfare and brand reputation.

Chart 6
Dividends
(€ Millions)



Source: Ferrari annual statements 2018-2022

Dividends, cash distribution, and share buyback: On April 14, 2023, a dividend distribution of € 1.810 per outstanding common share was approved, corresponding to a total distribution of approximately € 329 Million[10] (Chart 6). Many investors seek dividend-paying stocks for their risk-adjusted preferred returns – historical data (1973-2022) verifies that dividend-paying stocks are, on average, more reassuring for investors (Table 3)[11]. Ferrari pays dividends once per year, in May, and has a track record for increasing them over time (Chart 6),

Table 3
Annual Returns and Volatility by Dividend Policy (1973-2022)

	Returns	Beta	Standard Deviation
Dividend Growers & Initiators	10.24%	0.88	16.15%
No Change in Dividend Policy	6.60%	1.01	18.55%
Dividend Cutters & Eliminators	3.95%	1.18	22.17%
Equal-Weighted S&P 500 Index	7.68%	1	17.76%

Source:Ned Davis Research and Hartford Funds, 12/22

[5] A leading global holding company with a market capitalization of €20.61 billion. Preço das ações e notícias de Exor NV (EXO) – Google Finance. (n.d.). Google Finance. https://www.google.com/finance/quote/EXO:AMS?sa=X&ved=2ahUKEwij6pXRwvqCAxWSiP0HHSYxBFUQ3ecFegQIJRAg

[6] It also maintains a significant holding in Stellantis N.V. (14.4%), one of the world's largest automotive manufacturers, which previously owned Ferrari N.V. before its spin-off in 2014. Fundamental Finance Playbook. (2020, March 2). EXOR N.V. | The Agnelli Holding Company - Fundamental Finance Playbook. https://fundamentalfinanceplaybook.com/security-analysis/exor-nv-agnelli-investment-company/

[7] Their involvement can promote transparency and robust corporate governance practices. Additionally, they manage a diverse range of assets, including mutual funds, institutional funds, index funds, and ETFs, for diversification purposes. Masters, B., & Schmitt, W. (2023, October 27). Asset manager T Rowe Price warns outflows will persist in 2024. Financial Times. https://www.ft.com/content/947abc2d-4e01-40d5-ae18-dc805368e3d2

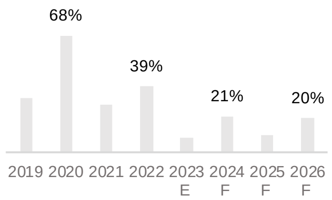
[8] Each special voting share provides the holder with one vote during shareholder meetings. (2023, February 24) Ferrari 2022 annual report. Ferrari. (n.d.). Financial Documents | Ferrari Corporate - Ferrari.com. https://www.ferrari.com/en-EN/corporate/financial-documents?year=2022

[9] They have been tied to the company since 1969, with Fiat's acquisition of 50% of Ferrari. Who owns Ferrari? | Who makes Ferrari? | Continental AutoSports Ferrari. (2021, December 21). Continental Ferrari. https://www.continentalautosports.com/ferrari-information/who-owns-ferrari/

[10] In May 2023, €307 million of the distribution was paid to the parent company's owners, with the remaining balance was paid in the third quarter of 2023- Ferrari Q2 and Q3 reports. Ferrari. (n.d.). Financial Documents | Ferrari Corporate - Ferrari.com. https://www.ferrari.com/en-EN/corporate/financial-documents

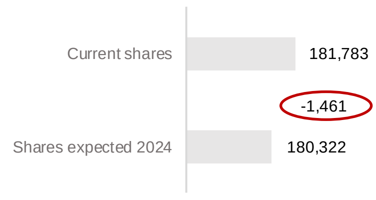
[11] Dividend Growers & Initiators have the highest returns among the groups, indicating that companies with a history of increasing or initiating dividends tend to perform well, and also are less volatile than the market (Equal Weighted S&P 500 index serving as benchmark for comparison). Dividend Non-Payers have a negative return, suggesting that, on average, companies that do not pay dividends have experienced losses. The latter are also more volatile than the market

Chart 7
Reinvestment Rate



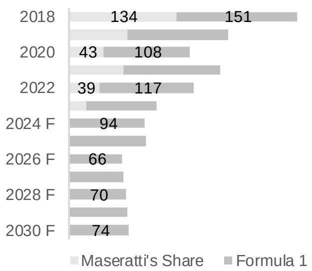
Source: Equity research valuation model

Chart 8
Buyback program 2022-2026
(in Thousand units)



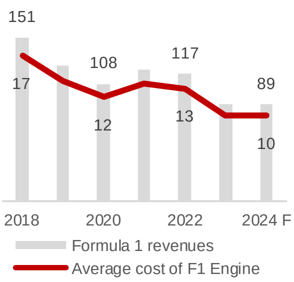
Source: Equity research valuation model

Chart 9
Engine revenues by value driver
(€ Millions)



Source: Equity research valuation model

Chart 10
Formula One revenues
(€ Millions)



which is a positive sign for long-term investors. With gross margins closing in approximately at 40% and cash and cash equivalents at 17% of total assets, Ferrari sits comfortably paying dividends and distributing cash back to the shareholders, while maintaining a healthy, albeit decreasing, reinvestment rate of proceeds to support its long-term goals and steady growth (Chart 7).

On June 30, 2022, Ferrari announced a new multi-year share buyback program of approximately €2 billion to be executed by 2026[12]. The fourth tranche[13] of the new repurchase program, up to €350 million, is projected to be completed no later than June 26, 2024. According to the average value of shares repurchased from the previous four tranches[14] (€ 239.6), until the end of 2024, the expected number of shares repurchased will be 1.46 million (Chart 8), leading to a forecasted number of common shares to total 180.32 million by the end of 2024, versus the current amount of 181.78 million. Repurchasing shares is generally a positive sign for investors as the firm is transmitting confidence to investors its equity value will be appreciating in the future; their percentage of ownership increases, alongside their earnings per share (EPS growth estimated at 7.9% for 2024) for the lower denominator (refer to final remarks section).

Valuation

Engines

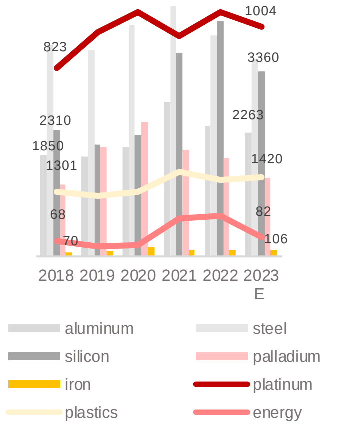
The current business unit of Ferrari is responsible for the development of engines and their associated technology.

Maserati: Historically, Ferrari has been a supplier to Maserati, providing them with V6 and V8 power units since 2003. However, this long-standing partnership recently came to an end as part of Maserati's "Dare Forward 2030"[15] commitment from Stellantis, their holding group. Their existing contract with Ferrari is set to expire this year, with 5,000 units supplied until the year-end, a reduction from 9,140 units in 2022 and 14,900 units in 2021. Maserati will now turn to Marelli, an Italian electric motor manufacturer, to fulfil their powertrain needs. Its impact on the revenues of the segment is evident in Chart 10 – in a period of four years (2021-2024F), revenues should decrease by 51%.

The deceleration rate of engines supplied to Maserati started in 2019[16]. Since then, an average gross result of € 7.5 Million has been lost year-on-year and

[12] Replacing the previous share buyback program that matured in 2020. Ferrari 2022 annual report
[13] Ferrari NV, announcement for the fourth tranche of the buyback period. globenewswire. (2023, November 7). Ferrari N.V. - Announcement of the fourth tranche of the Multi-Year Share Repurchase Program. wallstreet-online.de. https://www.wallstreet-online.de/nachricht/17512718-ferrari-n-v-announcement-of-the-fourth-tranche-of-the-multi-year-share-repurchase-program
[14] According to Ferrari's latest update on the Share buyback program 2022-2026, total shares repurchased amount to 2.33 million at a total value of € 559.2 Million, leading to an average value per share repurchased of € 239.56. With the announcement of the fourth tranche valued at € 350 Million, the expected number of shares repurchased is 1.46 million. Equity Research Team
[15] As part of this commitment, Stellantis has pledged that all of Maserati's new models will be entirely developed, engineered, and produced in Italy, and they will be equipped with electric powertrains (2030), and will come in a 100% electric version by 2025. Press release - Maserati Media Site. (n.d.). https://www.media.maserati.com/en-us/releases/1690
[16] Mihalascu, D. (2019, May 12). Ferrari will stop supplying engines to Maserati from 2021-2022. Carscoops. https://www.carscoops.com/2019/05/ferrari-will-stop-supplying-engines-to-maserati-from-2021-2022/

Chart 11
Raw materials
(USD/Tonne)



Source: Statista

Table 4
Relevant Ferrari modules

599 GTO

First model using hybrid technology.
Year: 2010

Ferrari LaFerrari

First hypercar using hybrid technology.
Year: 2013

SF90 Stradale

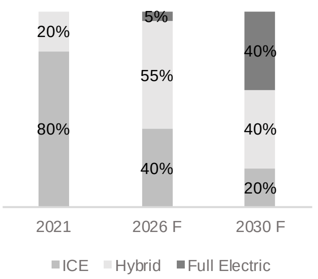
First sports car using plug-in hybrid technology.
Year: 2019

296 GTB

First range car using plug-in hybrid technology.
Year: 2021

Source: General Research by the analysis team

Chart 12
Type of cars by engine type, 2020-2030
(€ Millions)



Source: Ferrari 2022 Sustainability Report

completely from 2024 thereafter. The end of the partnership is forecasted to impact negatively the 2024 results in € 6.95 Million.

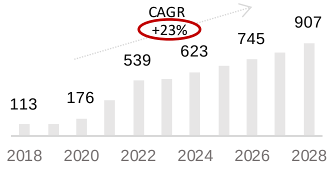
Formula One: Over the past five years Ferrari has been supplying engines to two teams: Sauber (under the name Alfa Romeo) and HAAS, an American racing team. However, a major shift is occurring after the 2023 season. Alfa Romeo has announced its withdrawal from Formula One and, according to market rumours, it will merge with HAAS to form a single team[17]. The Swiss-based Sauber team, currently operating under Alfa Romeo's name, will continue to use Ferrari's power unit until the end of 2025. The entrance of the German manufacturer Audi into Formula One will result in Ferrari being replaced as the power unit provider for one of its two customers, leading to a substantial decrease in revenues of € 29.2 Million, per year, shown in chart 10.

A single turbocharged 1.6-liter V6 engine, which is used in Formula One cars, is valued at approximately $10.5 million (€9.84 million), with teams allowed to use three of these engines throughout the season. Notably, the cost of engines in Formula One has been a significant point of focus, with costs decreasing by 41% since 2018. However, it's worth highlighting those raw materials experienced a notable increase during the years of the pandemic, and although there has been some stabilization in the market, prices have not returned to historical levels (Chart 11). The impact of raw material costs on overall prices is a factor that cannot be overlooked - the average cost of the primary raw materials for engine production has been increasing at an average rate of 5.79% per annum. As a result, our research team anticipates increasing its revenues at the same pace from 2025 and beyond for the segment.

Legislation: Engine production has been subject to sustained pressures due to recent legislation. This trend is not unique to the United States and the UK[18]. Independent international organizations such as the United Nations (UN) are actively involved in shaping regulations, exemplified by the UN Global Technical Regulation (UN GTR) focused on the topic of brake particulate emissions from the brake systems of light-duty vehicles[19]. As a response to the current and anticipated environmental regulations, Ferrari has taken steps to improving the HY-KERS (Kinetic Energy Recovery System) technology into their Formula One cars[20]. Currently, the company has adopted plug-in hybrid technology in the likes of the SF90 Stradale and the 296 GTB. These new hybrid models have succeeded in reducing vehicle emissions during the usage phase by

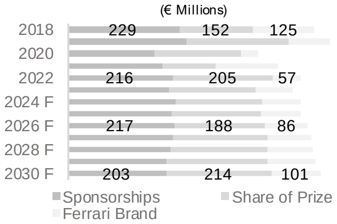
[17] Chinchero, R. (2023, August 2). Alfa Romeo resta in F1: rinominerà le power unit di Haas dal 2024. motorsport.com. https://it.motorsport.com/f1/news/alfa-romeo-resta-in-f1-rinominera-le-power-unit-di-haas-dal-2024/10503138/
[18] Notably, the Washington State House bill 1204, titled "Clean Cars 2030," mandates that all passenger and light-duty vehicles, whether privately or publicly owned, of model year 2030 or later registered in Washington state must be electric vehicles. In November 2020, the UK Prime Minister, as part of the 10-Point Plan for a Green Industrial Revolution, announced the phasing out of the sale of new petrol and diesel cars in the United Kingdom by 2030. Ferrari 2022 Annual Report
[19] U UNECE adopts groundbreaking regulation introducing a methodology to measure particle emissions from cars and vans' braking systems | UNECE. (2023, June 21). https://unece.org/media/press/380012
[20] This feature was first incorporated into the Ferrari 599 GTB Fiorano, in 2010, Ferrari's first of many road cars to utilize hybrid technology. Brogan, M. (2021, August 12). Ferrari 599 HY-KERS, Ferrari's first hybrid – Geneva 2010. Drive. https://www.drive.com.au/news/ferraris-first-hybrid/

Chart 12
Global electric vehicle revenue forecast 2016-2028
($ Billions)



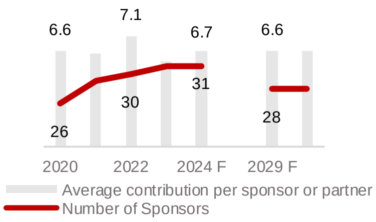
Source: Equity research valuation model

Chart 13
Sponsorship, Commercial and Brand revenues
(€ Millions)



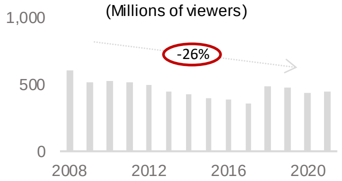
Source: Equity research valuation model

Chart 14
Sponsors and Partners
(€ Millions)



Source: Equity research valuation model

Chart 15
Formula One racing global TV audience
(Millions of viewers)



Source: Equity research valuation model

Table 5
Formula One Sponsors 2022

Entities F1	Number of Sponsors
Mclaren	43
Ferrari	30
Aston Martin	26
Mercedes	24
Formula 1	18
Total Branded Partnerships	299
B2C	145
B2B	135
B2All	19

Source: Formula One, Marksin Mikov

approximately 30% when compared to traditional internal combustion engines[21].

Ferrari's commitment to innovation encompasses a range of areas, including enhancements in turbochargers, engine downsizing (with V6 and V8 hybrid configurations), transmission, electric steering, and hybrid technology. These advancements signal a significant transformation for Ferrari in the years to come (Table 4), aligning the company with changing industry standards and environmental concerns. Supply and demand are both driving this transformational change in the luxury mobility market. External pressures like legislation are strengthened by demand for electric mobility, expected to increase at a compounded annual growth rate of 23.2% by 2028 (Chart 12).

Sponsorship, Commercial and Brand

Sponsorship deals: Ferrari's F1 team (Scuderia Ferrari) benefits from sponsorship agreements with large companies such as Santander, Shell, and Puma, Ferrari’s official Formula One sponsor[22]. The revenues for this segment were projected based on the average contribution per sponsor, which has historically been around €6.8 million (Chart 14)[23], times the number of sponsors.

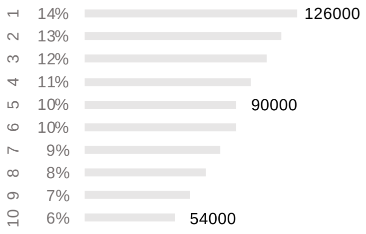
In 2017, when Liberty Media took control of the Formula One brand, it marked a pivotal juncture in the history of the sport[24]. Central to their approach was placing the drivers, and to a somewhat lesser extent, the technical and mechanical side of Formula One racing, at the heart of the sport[25]. While this approach worked to ramp-up attention to the sport in 2018 and 2019 (Chart 15), the analyst’s view is that Formula One is currently living in a bubble of broadcasting, set to decline in the years that follow[26].

Out of the total sponsors and partners, the Italian manufacturer counts with 31 (2023 season), but this number is anticipated to decrease over the years to 28[27] (Chart 15), duly of the historical viewership decrease[28]. The total contribution of sponsorship deals is forecasted to follow the same evolution, from 44% to 37% by 2030, at a negative CAGR of 1.31%.

The automaker also competes in the World Endurance Championship (WEC), participating in two of the three categories: GTELM (a successor to the GT3 class) and the Hypercar class, which they joined in the 2023 calendar year. With their entry into the second racing category, research indicates that the amount of

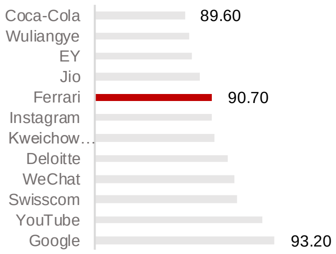
[21] Ferrari 2022 Annual report
[22] PUMA recently renewed its contract with Ferrari Formula One racing team as official sponsor. Ferrari Q3 Webcast session, November 2023
[23] Santander alone made a substantial individual contribution of €60 million for the 2023 season. Ferrari Q3 Webcast session, November 2023
[24] Admin, N. (2022, April 22). F1 fandom: Will the bubble burst? National Motorsport Academy. https://motorsport.nda.ac.uk/news/f1-fandom-will-the-bubble-burst/
[25] This strategic shift aimed to create compelling human-interest stories, enriching the Formula One experience for fans. A Kulpa, C. (2022, November 7). Formula One is growing in the U.S. Is it a bubble waiting to pop? Twin Checkers. https://www.twin-checkers.com/formula-one-us-bubble-waiting-to-pop/
[26] Entering next weekend’s inaugural Las Vegas Grand Prix, Formula 1 is averaging 1.11 million viewers across the ESPN family of networks — down 8% from last year but still the second-highest average on record. Ramirez, I. (2023, November 18). Formula 1’s race in Las Vegas proves it doesn’t get its new American audience. Vox. https://www.vox.com/culture/2023/11/18/23965792/formula-1-growth-race-las-vegas-strip-grand-prix-fans
[27] The total number of B2C sponsors in the sport were 145. Sponsors agree to these partnerships for three main purposes – increase sales, brand awareness, and strategy. We have assumed, for forecasting purposes, if their expected return is not being fulfilled, some of these sponsors will not renew their contracts in the following seasons. Equity Research Team
[28] F. (2022, February 17). Formula 1 announces TV, race attendance and digital audience figures for 2021 | Formula 1®. Formula One. https://www.formula1.com/en/latest/article.formula-1-announces-tv-race-attendance-and-digital-audience-figures-for-2021.1YDpVJIOHGNuok907sWcKW.html

Chart 16
Variable Prize Money
(€ in Thousands)



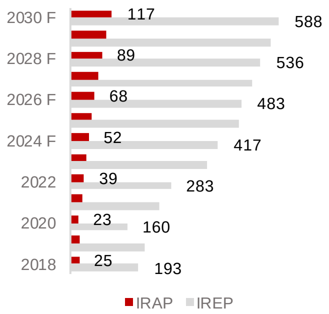
Source: Equity research valuation model

Chart 17
Leading brands worldwide, 2023 Brand Strength Index
(0-100 scale)



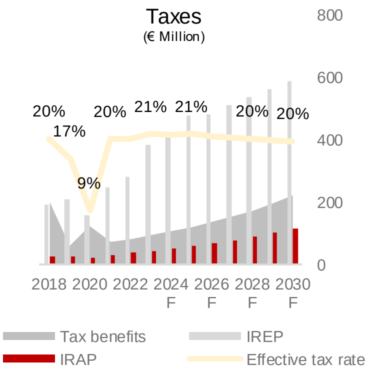
Source: Equity research valuation model

Chart 18
IREP and IRAP
(€ Millions)



Source: Equity research valuation model

Chart 19
Taxes
(€ Million)



Source: Equity research valuation model

sponsorship directed at the Scuderia Ferrari WEC team is expected to double, representing approximately 2% of revenues for this segment. The average contribution of sponsors to the F1 team was projected using a moving average, considering the connection to the previous years' constructor's results.

Prize money: The amount of revenue the team earns at the end of the racing season, mostly derives from Formula One. It is composed of two independent variables: a fixed participation fee – Long Standing Participation (LSP) – that is awarded singularly to Ferrari for its participation in the sport since its beginning (1950), which has been around € 63 Million for the past five years; and a variable reward, dependent on the constructor's position in the Formula One ranking. The first place receives 14% (€ 126 million) of the total variable prize and decreases proportionally until it reaches the last position (10th place), which is entitled to € 54 Million (6% of the capital pool)[29]. Scuderia Ferrari finished third this season, awarding the company with € 108 Million of variable compensation. A forecast of revenues was done based in Ferrari's position in the championship for the years to come. We believe it will keep third place as average, given the substantial pressure coming from the top four contenders, Redbull, Mercedes, McLaren and Aston Martin; new engine suppliers (Audi, 2026 and GM, 2028) entering the sport; and shorter, lighter and thinner cars, as planned by the FIA[30].

Ferrari Brand: The last component of the driver is the value associated with the Ferrari brand itself, through licensing, royalty income and merchandising. There was insufficient data available to conduct a well-sustained and accretive forecast. The historical values (2018-2023) were obtained by difference from the total sponsorship, commercial and brand revenues to sponsorship and prize contributions. Based on recent historical growth and brand recognition worldwide (Chart 17)[31], we have concluded that Brand would be the biggest driver of growth for the segment (Chart 13), to appreciate at a CAGR of 3.42%.

Taxes

Ferrari's business is subject to a range of taxation, primarily in Italy, which encompass the Italian corporate income tax (IRES), having remained steady at 24% over the past three years, and the regional trade tax (IRAP) with a rate of 3.9% (Chart 18[32]).

In 2018, Ferrari N.V. entered into an agreement with the Italian Revenue Agency concerning the Patent Box tax regime, offering tax advantages to companies that

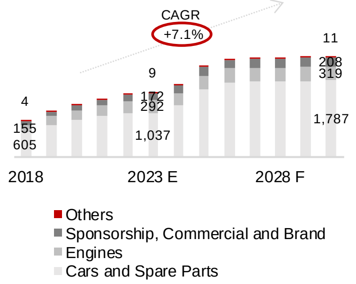
[29] Booth, D. (2023, March 4). F1 prize money 2023: Payout breakdown, how much drivers and constructors win. Sporting News. https://www.sportingnews.com/us/formula-1/news/f1-prize-money-2023-breakdown-how-much-drivers-constructors-win/niv7nqaftiivoiphfufjf4dy
[30] FIA has declared a 50kg weight target reduction by 2026 in all cars. (2023, September 19). The FIA targets 50 kg lighter cars for F1's 2026 rules changes. F1News.live. https://www.f1news.live/the-fia-targets-lighter-more-efficient-cars-for-f1s-2026-rules-revolution/
[31] Ferrari is again the strongest Automobile brand with a Brand Strength Index score of 90.7, and AAA+ brand rating. Automotive Industry 2023 | The Annual Brand Value Ranking | BranDirectory. (n.d.). https://brandirectory.com/rankings/automobiles/
[32] The unusual tax behaviour in 2020 can be attributed to Article 110 of Law Decree No. 104/2020[32], which enacted "Urgent measures to support and revitalize the economy." This article reintroduced the voluntary step-up of tangible and intangible assets, subject to the application of a substitute tax at a rate of 3%. Ferrrai 2020 annual report

Table 6
Patent Box Regime

	Patent Box	No Patent Box
Equity	€ 63,158,311	€ 63,074,885
Price Target	€ 350.3	€ 349.8
Capital gain	3.50%	3.40%

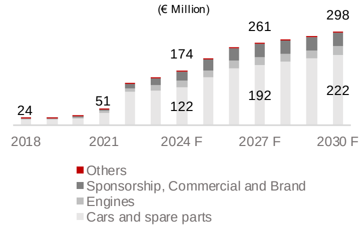
Source: Equity research valuation

Chart 20
Property, plant and equipment map
(€ Million)



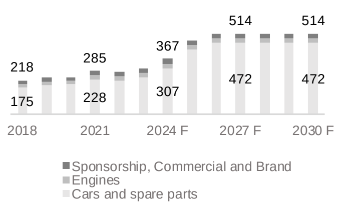
Source: Equity research valuation model

Chart 21
Land
(€ Million)



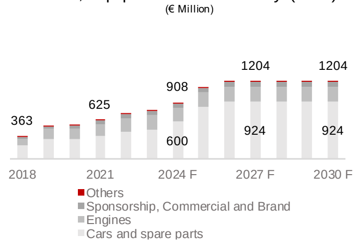
Source: Equity research valuation model

Chart 22
Industrial Buildings
(€ Million)



Source: Equity research valuation model

Chart 23
Plant, Equipment and Machinery (PME)
(€ Million)

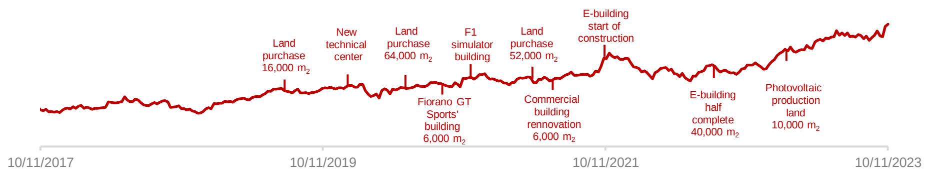


Source: Equity research valuation model

derive income from the utilization of patents, trademarks, designs, and know-how. The current Patent Box regime introduced a 110% "super tax deduction" for specific costs associated with eligible intangible assets, such as research and development capital expenditures (R&D). This new regime is set to expire in 2024. Ferrari's ability to renew its participation in this regime will depend on potential future changes to Italian tax legislation[33]. The effective tax rate is estimated to fall within the range of 20-21%, considering assumptions regarding the growth of corporate tax rates and associated benefits. Tax adjustments deriving from the Patent Box regime are immaterial to the overall valuation (Table 6), with roughly 0.2% capital gain impact in the price target sensitivity estimation.

Property, Plant, and Equipment (PP&E)[34]

Land: Since 2018, Ferrari has been making substantial land purchases to accommodate the transition into electric mobility (Timeline 1). The current construction of the E-building and supporting infrastructure (photovoltaic production field[35]) are halfway done (completion by June 2024). Historical growth of land has been at a CAGR of 45.1%, with 2022 alone growing at 164% YoY. 2023-2026 are years of expected slowdown in land purchases, given the shorter-term focus on finishing the E-Building[36]. Nevertheless, with the phase of the photovoltaic field at one-quarter, some considerable investments in Maranello are still expected by the end of the decade. Therefore, land is estimated to continue growing, at a CAGR of 14.70%. It also does not possess any right-of-use assets as the company only builds and operates in proprietary land.



Timeline 1: PP&E Timeline, Ferrari Annual Reports

Industrial buildings: Before the recent additions (Timeline 1), Ferrari counted three major facilities – Maranello's headquarters[37], Modena's production plant[38], and Fiorano's racing track[39]. Distribution was mostly attributed to Cars and Spare parts (80% of the total) and forecasted in the same line of thought as land. As far

[33] Companies undergoing bankruptcy procedures are ineligible to opt for the regime. Consequently, in our analysis, we anticipate that Ferrari will be able to utilize this regime over an extended period. Ferrari 2022 annual report and Equity Research Team
[34] Property, plant and equipment were split proportionally across the different business units - Cars and Spare parts (67%), Engines (19%), Sponsorship, Commercial and Brand (12%), and finally, Others (2%) based in the analyst's professional judgment, in line with the BU's internal demand and size. Within each unit, PP&E is split further into five categories – land; industrial buildings; plant, machinery and equipment; other assets; and advances and assets under construction. Each subdivision has two major components – wholly owned property and right-of-use assets34 (which Ferrari must account for, since it earns economic benefit over assets it does not possess ownership over). Equity Research Team
[35] Ferrari's collaboration with the Enel Group has entered the operational phase with the recent installation of the first of the system's four sections. In total, they will comprise 3,800 solar panels, able to deliver a maximum power of 1,535 kWp. Ferrari. (2023, March 28). Ferrari invests in solar energy systems with Enel X. Ferrari. https://www.ferrari.com/en-EN/corporate/articles/ferrari-invests-in-solar-energy-systems-with-enel-x
[36] Automotive News Europe. (2023, November 3). Ferrari is ahead of schedule with first all-electric model. Automotive News Europe. https://europe.autonews.com/automakers/ferraris-q3-results-lead-raised-annual-earnings-forecast
[37] In operation for the design, development and production of road and track cars, as well as of our Formula 1 single-seaters. Include a Product development center, hospitality area and the Ferrari Museum. Ferrari 2022 annual statement
[38] Manufactures aluminium bodyworks for the regular Range, Special Series and prototype cars. Ferrari 2022 annual report
[39] Also houses Formula One logistics office. Ferrari 2022 annual report

Chart 24
Other assets
(€ Million)

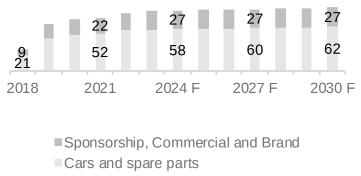


Chart 25
Advances and assets under construction
(€ Million)

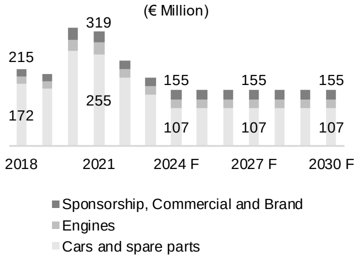


Chart 26
Property, plant and equipment map
(€ Million)

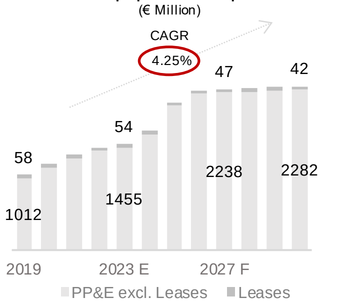


Chart 27
PP&E CAPEX Breakdown
(€ Million)

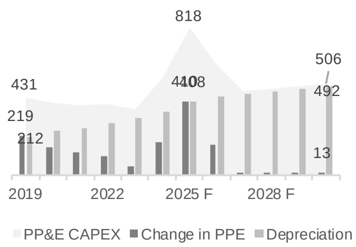
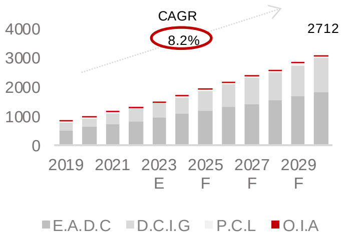


Chart 28
Intangible Assets
(€ Million)



Source: All graphs sourced from our Equity research valuation model

as available information goes, planned Industrial Buildings will have been fully reached by 2026, thus no new additions until 2030. Regardless, some capital commitments will be made between 2023-2026. As such, expected CAGR is 4.85% (Chart 22).

Right of use assets had an average historical representation of 2%, decreasing substantially in the last two available fiscal years (-18% and -14%). Forecasted leases were assumed to start at 2% and decrease by 1% thereafter.

Plant, Machinery and Equipment (PME): Distribution of machinery and equipment was less skewed towards Cars and Spare parts (60%) - Engines (30%), Sponsorship, commercial and brand (9%), and Others (1%). The split took into account the intensity of use of machinery required by each unit and assumed to change at the growth rate of Industrial buildings, since correlation between both is expected to be very high. CAGR is expected to grow at 3.97% (Chart 23).

Historical growth of rights of use assets of PME has been negative (-51%, 2020; -31%, 2021; -40%, 2022). Accounting for roughly 0.3% of total PME, the declining trend of growth was extended until 2028 and assumed to remain constant thereafter.

Other assets: These were assumed to be related to retail stores of Ferrari. Consequently, 70% of the total amount was attributed to Cars and Spare parts and 30% to Sponsorship, commercial and brand, for its merchandising component. CAGR of other assets is 0.59% following 2023 (Chart 24).

Right of use assets were forecasted based in leasing costs per retail store. The downward trend of the number of stores made these asset's estimations fall at a CAGR of 5.84%.

Advances and assets under construction: Assets under construction were assumed to be related to other work-in-progress assets, associated with the construction of the E-Building and supporting infrastructures, complementing the finished infrastructure accounted for in "Industrial Buildings". As previously mentioned, roughly one-quarter of the development has already been made and is ahead of schedule. Growth rate was assumed at negative 25% (2023 – 2025). Following that, no change is expected, leading to a CAGR of -2.92% (Chart 25).

The declining trend across all rights-of-use assets across all categories is attributed to Ferrari's investments in expanding its facilities to accommodate the transition to electric and hybrid models, reducing the need for leasing.

With the previous analysis, PP&E is forecasted to grow at a CAGR of 4.25%.

CAPEX and depreciation: With the growth rate of PP&E, Ferrari becomes liable for an increasing number of assets subject to depreciation. After 2026, it is

Chart 29
Externally acquired development costs
(€ Millions)

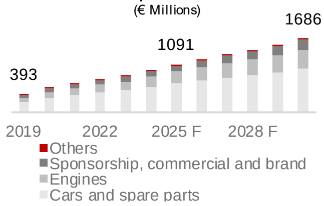


Chart 30
Development costs internally generated
(€ Millions)

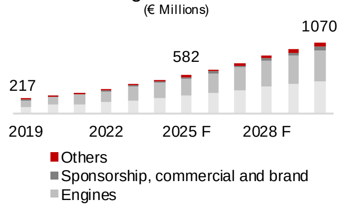


Chart 31
Patents, consessions and licenses
(€ Millions)

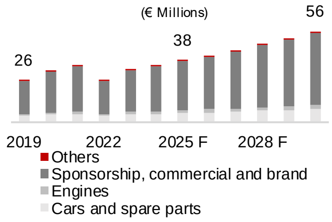


Chart 32
Other intangible assets
(€ Millions)

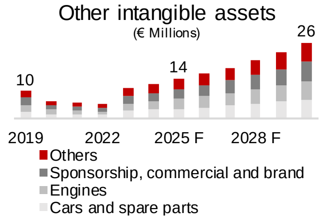
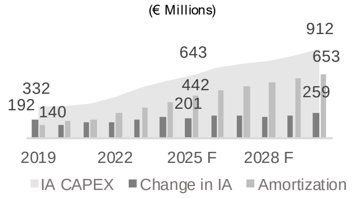


Chart 33
Intangile Assets and Amortization
(€ Millions)



Source: All graphs sourced from our Equity research valuation model

assumed a slowdown of asset purchases (annual average PP&E change of € 13.13 Million vs € 187.6 Million before 2026), despite depreciation's[40] 4.44% CAGR increase. This makes CAPEX[41] to grow at an accelerated pace until 2025, and to decrease to historical rates of growth afterwards (Chart 27), foreseen to grow steadily at 2.44% CAGR.

Intangible Assets (IA)

Externally acquired development costs (EADC): These relate to development costs of the current and future product offering of Ferrari[42]. Over the period from 2023-2026, Ferrari plans to launch fifteen new models, assumed at an average of 3 current model's upgrades[43], and two entirely new models. 2022 also saw 3 models added to the portfolio, meaning this effort from Ferrari is consistent, yet not overly ambitious. EADC are forecasted to grow at 25% YoY, higher than the 21% observed historically, and at 5% thereafter. CAGR sits at 7.79% from 2023.

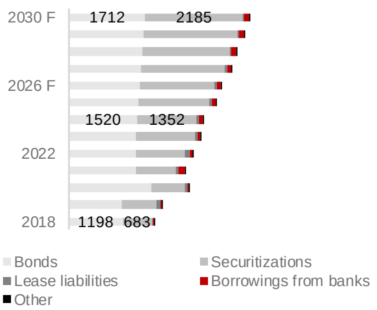
Development costs internally generated (DCIG): Under the IAS 38[44], internally generated development costs[45] have had an historical cap of 34% of the total IA. The same cap was assumed for forecasting purposes. Growth rate of DCIG was assumed at historical levels (19%) until 2026 and reduced gradually to 10% until 2030 to comply with the covenant, leading to a CAGR of 9.26% (Chart 30).

Patents, concessions and licenses (PCL) and Other Intangible Assets (OIA): These two elements have been put together for their shared goal, mainly related to the registration of trademarks[46]. Trademarks in Europe take at least 7 months to become registered[47]. The time-consuming and highly regulated process restricts the amount of trademarks Ferrari can do yearly. Historical growth from PCL and OIA have been at 8% and 14% on average. Forecasted growth has been assumed at these respective rates, with a CAGR of 6.92% and 9.80%.

CAPEX and amortization: According to EU regulation, trademarks are available for a period of 10 years[48], patents often last of 20 years[49], and licenses are usually contractual in a yearly basis, with a maximum validity of 3 years[50]. This led our analysis to a weighted average useful life of IA of approximately 3 years. Amortization is expected to grow at a CAGR of 8.12%, reaching 57% of total depreciation and amortization (PP&E and IA) by 2030 (Chart 33).

[40] Depreciation was forecasted based on the average number of years of expected useful life of tangible and intangible assets. Tangible assets subject to depreciation were assumed to be split into two – industrial buildings and PMEs, with a respective useful life of 10 and 5 years. Intangible assets were assumed with a lower useful life of 3 years. These values were reconciled with historical depreciation levels. Equity Research Team
[41] Capex was calculated by summing changes in PP&E and yearly depreciation. Equity Research Team
[42] Ferrari annual report 2022
[43] Improvements of existing new models – Roma Spider, 296 GTS (2023), to new models like the Purosangue (SUV). Equity Research Team
[44] The costs of generating other internally generated intangible assets are classified into whether they arise in a research phase or a development phase. Research expenditure is recognized as an expense. Development expenditure that meets specified criteria is recognized as the cost of an intangible asset. IFRS - IAS 38 Intangible assets. (n.d.). https://www.ifrs.org/issued-standards/list-of-standards/ias-38-intangible-assets/
[45] Materials and personnel costs relating to the engineering, design and development activities focused on content enhancement of existing cars and new models. Ferrari 2022 report
[46] Ferrari owns approximately 500 trademarks (word or figurative), registered in several countries. The maximum level of protection is given to the following iconic trademarks, for which they own approximately 4,270 applications/registrations in approximately 140 countries, in most of the main classes for goods and services. Ferrari 2022 annual report
[47] Mar, A. (2022, February 16). How long does it take to register a trademark? TradeMarkAngel. https://trademarkangel.com/faq-items/long-take-register-trademark/
[48] FAQ: Renewals. (n.d.). EUIPO. https://www.euipo.europa.eu/en/the-office/help-centre/forms/faq-renewals
[49] Where is a patent valid and how long does it last? | Epo.org. (n.d.). https://www.epo.org/en/service-support/faq/patents-and-ip/where-patent-valid-and-how-long-does-it-last
[50] The L_2019186EN.01000101.XML. (n.d.). https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32019R1148

Chart 34
Debt
(€ Thousands)



Source: Equity research valuation model

Table 7
Cashflow management
(in days)

	2019	2020	2021	2022
AHP	85	100	95	93
ACP	22	19	16	17
APP	144	155	140	124
CCC	-37	-35	-29	-15

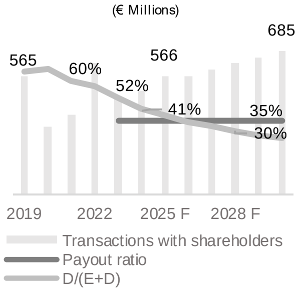
Source: Equity research valuation model

Table 8
Cashflow management
(in days)

	2019	2020	2021	2022
Current Ratio	2.3	1.9	2.3	2.0
Quick Ratio	1.9	1.6	1.9	1.7
Cash Ratio	0.8	0.8	0.9	0.7

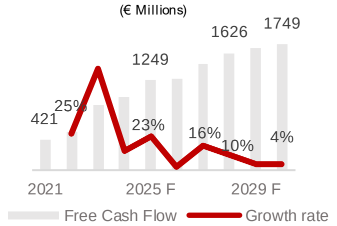
Source: Equity research valuation model

Chart 35
Debt accounts
(€ Millions)



Source: Equity research valuation model

Chart 36
Free Cash Flows
(€ Millions)



Source: Equity research valuation model

Debt

Debt has four main components for which we assume book value equals market value (Chart 34).

Bonds and notes: Ferrari issued two bonds, one with maturity until 2023 and another until 2025. Since we do not foresee an unexpected scenario that would compel Ferrari to raise its debt outstanding, to forecast this component, we assumed Ferrari rolls it over[51]. The company also has two notes (due 2029 and 2031) issued for general corporate purposes, including the funding of capital expenditures, both with a principal of € 150M. It has been assessed that Ferrari is better off not repaying its debt entirely since the automotive industry is very capital intensive[52].

Securitizations: As a means of diversifying its sources of funds, the Group sells some of its receivables originated by its financial services in the United States through asset-backed financing or securitization programs[53]. Consequently, we have decided to forecast this component as a percentage of total revenue from car sales (CAGR 1.71%).

Lease liabilities: The Group recognizes lease liabilities in relation to right-of-use assets in accordance with IFRS 16, previously described in the Property, Plant, and Equipment section.

Borrowing from banks: These relate mainly to financial liabilities of Ferrari Financial Services (FFS) to support the financial services operations - offering retail clients financing for the purchase of Ferrari cars, and dealer financing. Consequently, we forecast this component as a percentage of total revenue from cars since FFS Inc will grow proportionally to car sales.

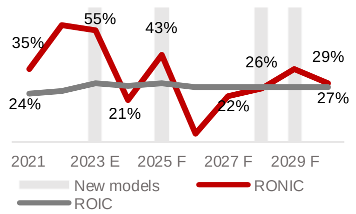
Despite being too early to make assumptions on interest rates for 2030, from Q2 2024, they are expected to start decreasing[54]. This incentivizes companies to take-in additional leverage as it becomes relatively cheaper compared to equity. Ferrari, however, is sitting comfortably regarding cash management and it does not require more debt to grow (Tables 7 and 8). On the contrary, main shareholders have been increasing their equity portion for the past 5 years (Group Structure). Our analysis is that this trend will continue moving forward and total debt-to-value will gradually decrease (Chart 35).

Value Creation

Ferrari's core operations will experience significant transformations throughout

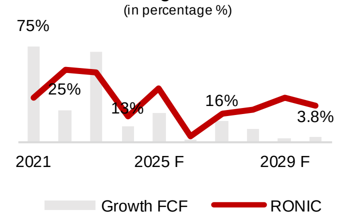
[51] Bonds with the same issue costs, Yield to Maturity, coupon rates, maturity, and price. Equity Research Team and Ferrari 2022 annual report
[52] In the near/medium future, it will require cash to support its future operational activities, continue its R&D expenditures and execute the buyback program. Equity Research Team
[53] This strategy had been employed for self-financing purposes, further reducing dependence on intercompany funding so that it can then be loaned to clients and dealerships when buying Ferraris and increasing the portion of self-liquidating debt with various securitization transactions. Ferrari 2022 annual report and equity research team
[54] Outlook 2024 | Barclays Private Bank. (n.d.). https://privatebank.barclays.com/insights/2023/november/outlook-2024/

Chart 37
Value creation
(in percentage %)



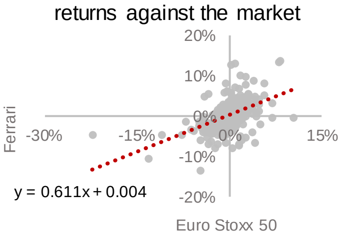
Source: Equity research valuation model

Chart 38
RONIC vs growth of FCF
(in percentage %)



Source: Equity research valuation model

Chart 39
Ferrari's weekly excess returns against the market



Source: Equity research valuation model

Table 9
Beta Unlevered Peer comparison

	Business	Beta Unlevered
Automotive	Aston Martin	0.93
	Mercedes Benz	0.55
	BMW	0.47
	Wolkswagen	0.42
	Stellantis NV	0.78
Luxury Brands	Burberry	1.32
	Estee Lauder	1.05
	Hermes	1.20
	Kering	1.27
	LVMH	1.29
	Moncler	1.16
	Prada	0.80
	Richemont	1.45
	Average	**0.98**

Source: Bloomberg and valuation model

the explicit forecasting period (2023-2030), preventing it from reaching a steady state (Chart 36). As historical and forecasted data demonstrates, the behaviour of RONIC is non-linear[55], as it is dependent on new capital invested in the firm and the incremental impact on cashflows in the following year. RONIC's upticks are correlated with brand new models introduced by Ferrari[56] - prior investments see turnover when the models are made available and sold to the customers.

In years of brand-new model launches, growth rates of FCF tend to be inversely related to the RONIC (Chart 38). This happens due to Ferrari's ramp-up strategy for the years following a launch[57], i.e., the model is made available in year x at a limited quantity; in year x+1, more quantities of that model are put available, which drives core results to increase (higher FCF, higher growth rate). This coincides with periods of divestment and preparation for new future models, and the cycle repeats itself (Chart 37). With the overall surge in invested capital, it is anticipated that ROIC will experience a decline in 2025-2027 but gradually recover over time as cash inflows from EVs materialize.

Weighted Average Cost of Capital

The equity beta was first obtained to calculate the return on equity[58]. The value was benchmarked against numerous players, encompassing not just the automotive sector but also the luxury industry (Table 9)[59].

Using the CAPM formula with a risk-free rate of 2.596%[60] and a market risk premium of 6.2%[61], we arrived at a levered cost of equity[62] of 7.2% (Table 10).

Considering Ferrari's BBB+ rating (CRIF Ratings Agency -annual default rate of 0.25%[63]), we factored in the expected loss rate given default for unsecured debt at 42.10%. With the Yield to Maturity of the company's longer-term bond (Bond 20/25) at 4.18%, we calculated the cost of debt[64] to be 4.08% (Table 10).

Lastly, we conducted an analysis to determine the company's long-term Debt-to-Enterprise Value (D/EV) ratio, which is set at 26.5%. This ratio is projected to steadily decrease over the years, primarily driven by equity repurchasing programs employed by Ferrari. This reduction mitigates financial risk and

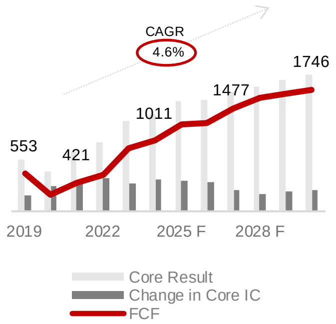
[55] The trajectory of RONIC is non-linear due to the evolution of the company's product mix - reduction in ICEs and a rise in hybrid and electric vehicles. This shift led to an increase in manufacturing costs in preceding years, alongside a broader product range catering to a more extensive customer base, boosting sales in the years to come. Equity Research Team
[56] Brand new model's timeline and forecast: 2023- Purossague; 2025 – First EV GT; 2028 – Second EV GT Spider; 2029 – First EV (SUV). Equity Research Team
[57] Ferrari's ramp-up phases are those in which a brand-new model is launched. Quantities of that model available for that year are purposefully made lower, and increasing the years that follow. This strategic move drives demand given the exclusivity of the most recent models. Ferrari Webcast Q3 2023 – section ramp-up or Purossangue.
[58] The raw beta was computed by regressing the weekly returns (Chart 39) of each company's stock price, from January 2018 until November 2023, against the returns of the market (Eurostoxx 50 was used in approximation). Raw Beta measures the price volatility of Ferrari's stock to the overall market.
An adjusted Beta of equity was used (assuming that a security's beta gradually moves toward the market average over time, $\beta_{Market} = 1$), as a proxy of Ferrari's future Beta of Equity, under the formula: $\beta_{Adjusted} = \frac{2}{3} * \beta_{Raw} + \frac{1}{3} * \beta_{Market}$
The selected risk-free rate was the 10-year German Government Bond Yield because Ferrari's main shareholders are European long-term investors. Equity Research Team
[59] Our selection process involved refining the list using some key metrics: market capitalization, enterprise value, cash and marketable securities, revenue, EBITDA, EBIT, net income, and operating margin. Highlighting luxury brands as core competitors, disregarded as direct competition by Ferrari. Ferrari 2022 annual statements
[60] 10Y German Government Bond yield - 17th of November 2023. Germany 10-Year bond historical data - Investing.com. (n.d.). Investing.com. https://www.investing.com/rates-bonds/germany-10-year-bond-yield-historical-data
[61] Market risk premiums were computed as the average of market risk premiums of selected nations in Europe. Statista. (2023, September 14). Average market risk premium for selected countries in Europe 2023. https://www.statista.com/statistics/664786/average-market-risk-premium-selected-countries-europe/
[62] $r_e = r_f + Ad_j\beta_e * MRP$
[63] The 2Y default probability was retrieved from CRIF Ratings Agency, and converted into a 1Y probability by: $1Y\ Default\ Probability = \sqrt{1 + 2Y\ Default\ Probability}$ -1
[64] $r_d = YTM - P(default) * \ Loss\ Given\ Default$

Table 10
Weighted average cost of capital

WACC	5.92%
Adjusted Beta	0.74
Re	**6.9%**
Rf	**2.6%**
Market risk premium	5.9%
Rd	**4.1%**
Loss given default	42.1%
Recovery rate	57.9%
Default Probability 2Y	0.5%
Yield Ferrari N.V. 20/25	4.2%
D/V	26.5%
Debt Beta of the market	0.14
Corporate Tax rate	24.0%

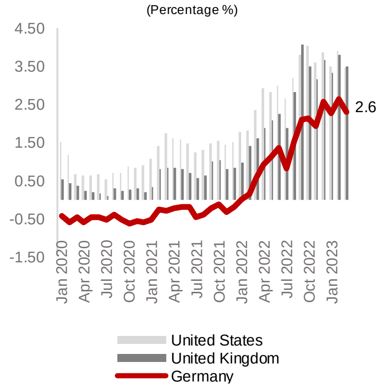
Source: Equity research valuation model

Chart 40
Core result and FCF
(€ Thousand)



Source: Equity research valuation model

Chart 41
10Y Government Bond Yields
2020-2023
(Percentage %)



Source: Statista

provides Ferrari with more flexibility for strategic decisions[65].

Utilizing Ferrari's statutory tax rate of 24%, we calculated a WACC of 5.92%[66], which is used to discount the core free cash flows generated by the company after the fiscal year 2023.

Discounted Cash Flows Valuation

For the Discounted Cash Flow (DCF) valuation, the business units were valued individually[67]. Free cash flows were calculated until 2030 and discounted, using the same WACC[68], from 2024 onwards. The analysts determined the terminal value using the terminal value growth rate[69] (g_t) (Table 13).

Cars and spare parts were set with a g_t of 3.8%. An acknowledgement must me made regarding its relatively high value[70] - the risk-free rate assumption used in the model is at a three-year all-time high (Chart 40), which put a floor to how much we could lower the expectations on perpetual growth (refer to impact of inflation in valuation section).

Core result is expected to grow at a CAGR of 4.99%, slightly below the market of luxury cars, (6.9% CAGR[71]) until the end of the decade. Non-core business was valued at the book value of assets, since applying the DCF method with the same discount rate for the core business could potentially lead to a misleading valuation - financial assets are not a part of the company's core business, thus being subject to different discounting criteria. With an enterprise value of €64.0 billion and net financial assets of € 888 Million, we arrived at an equity value of €63.1 billion in 2024 (Chart 43). With a projected number of shares outstanding at 180,3 million, the implied price target (excluding scenario analysis) for 2024 is €350.25.

Macro Outlook

The anticipated recession in 2023 did not become a reality. Simply because it did not happen in 2023, many investors are now expecting it in 2024[72]. Despite the 2024 outlook not being the most positive, Ferrari enjoys a large base of core

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[65] A company with a decreasing D/EV has greater leeway for growth opportunities, such as acquisitions, without significantly increasing its debt burden. Equity Research Team

[66] $WACC = r_e * \frac{E}{EV} + r_d * \frac{D}{EV} * (1 - t)$

[67] The analyst concluded this would be more accurate to depict how value is created, alongside a more detailed sensitivity assessment. Equity Research Team

[68] The same was used since WACC assumptions are company, and not Business unit specific. Equity Research Team

[69] Achieved by multiplying the ROINIC and the RR for all but the Engines segment. In an industry characterized by constant evolution, where connected, autonomous, shared, and electric mobility will surely be relevant, Ferrari may encounter challenges in maintaining its supremacy as a luxury car manufacturer. Nevertheless, disruptive changes have already been at play since the beginning of the manufacturer's life, thus we are confident that Ferrari will continue being disruptive for a very long period. We also believe it's prudent to temper expectations regarding growth opportunities in the very distant future, hence trimming the 2030 value of growth rate for Cars and Spare parts by half a percent. Engines ware expected to continue growing in the long run at the increasing price of raw materials, the same growth rate used to forecast revenues until 2030. Sponsorships and Others were kept at terminal RONIC * RR of 2030, assumed to be already in a steady state.

[70] Ferrari anticipates a 2% terminal growth rate in their annual accounts of 2022

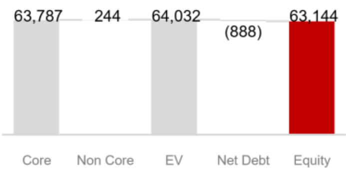
[71] Luxury Car Market Size, Share & Trends Analysis Report by vehicle type, by propulsion type (Internal Combustion Engine, Electric), by region, and segment Forecasts, 2023 - 2030. (n.d.). https://www.grandviewresearch.com/industry-analysis/luxury-car-market-report

[72] With a stronger base of 2.8% (2023) worldwide economic growth, 2024 is likely to decrease to 2.4%. Inflation is expected to drop following central bank's price pressures, to below 3% in most large economies. Politics is also a pinning factor with 40 different states having governmental elections, including Taiwan in January, the UK and the US later in the year. Irrespective of their political inclinations, governments around the world will come under pressure to address excessive deficits, which is assumed to spill over into the general population, whether in the form or tightening fiscal policies or reformed government spending. Overall CPI is therefore expected to follow the same path. J.P. Morgan releases 2024 Long-Term Capital Market assumptions, revealing opportunities to build upon 60/40 portfolio as economy enters period of transition. (n.d.). https://am.jpmorgan.com/us/en/asset-management/adv/about-us/media/press-releases/jp-morgan-releases-2024-long-term-capital-market-assumptions-revealing-opportunities-to-build-upon-6040-portfolio-as-economy-enters-period-of-transition/

Chart 42
Core result waterfall
(€ Thousands)

Source: Equity research valuation model

Chart 43
Equity Waterfall
(€ Million)



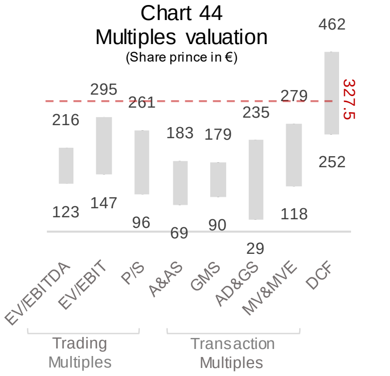
Source: Equity research valuation model

Table 11
Gross Domestic Product (GDP) Forecast, Year-on-year growth
(in percentage %)

	2022	2023F	2024F
Global	3.3	3	2.4
Advanced	2.6	1.5	0.8
Emerging	3.8	4	3.6
US	1.9	2.4	1
Eurozone	3.4	0.4	0.3
UK	4.3	0.5	0.4
China	3	5.1	4
India	6.8	6.3	6.4

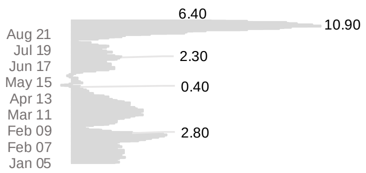
Source: Barclays Outlook 2024

Chart 44
Multiples valuation
(Share prince in €)



Source: Bloomberg and research valuation model

Chart 45
Inflation Rate of the EU
2005-2023
(Percentage %)



Source: Statista

customers[73] that are so affluent they're largely resistant to inflation or macro headwinds. Even if the projected results of next year's macro environment on Ferrari are negative, this will be taken lightly, given its gross margins and inelastic demand.

Multiples Valuation

Trading Multiples: As mentioned throughout the report, Ferrari occupies a unique position as a publicly traded luxury car manufacturer, making it challenging to find directly comparable peers. Hence, one placed more emphasis[74] on Price-to-Sales, EBITDA and EBIT multiples. EBIT is particularly relevant as it considers the impact of Capital Expenditures (CAPEX), which is crucial in capital-intensive industries such as the automotive. Valuing Ferrari using multiples on a third-quartile[75] basis leads to an estimated share price of €113, €265, and €219 respectively. This suggests a potential downside of approximately 65%, 20%, and 34%, leading to a SELL recommendation.

Transaction Multiples: This section was split into four categories based in the standard industrial classification (SIC) codes tapping into Ferrari's core activities[76]. Transactions considered were either resulting from investments, mergers and acquisitions or spinoffs since 2014, above a € 1 Billion threshold. EV/EBITDA data was collected from the seller and used for the multiple analysis[77]. Transaction multiples severely understate Ferrari's share price – acquisitions were in general too low for Ferrari's standard (Chart 43) value. Transaction multiples price Ferrari in a range between € 29 and € 279, leading to a strong SELL.

As mentioned, we acknowledge the absence of true comparables for Ferrari, and we undermine the relevance of multiple analysis for our investment recommendation.

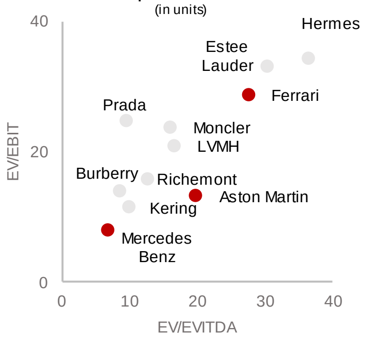
Sensitivity Analysis

Our team conducted a sensitivity analysis (Chart 46) by adjusting five key inputs: the weighted average cost of capital (WACC), terminal growth rate of cars and spare parts, retention ratio and RONIC, and share capital. These inputs were selected because they have a direct impact in the share price calculation.

WACC: The recent surge in inflation has been at historical highs over the last two

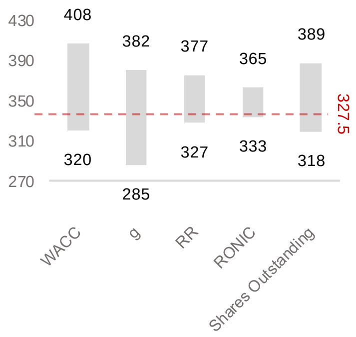
[73] Ferrari (brand value is up slightly 3% to US$7.2 billion), retains the pole position in the Brand Strength Index (BSI) with an impressive 91/100 score and the consequent top rating of AAA+. brand-finance-luxury-and-premium-50-2023-preview (1). (n.d.). Scribd. https://www.scribd.com/document/662601924/brand-finance-luxury-and-premium-50-2023-preview-1
[74] Given the distinctive characteristics of the industry the Price-to-Earnings (P/E) ratio may be misleading due to its sensitivity to a company's capital structure.
[75] The utilization of the third quartile of the sample for valuation was based on the fact that comparable companies trade at low multiples, especially when considering automotive industry peers. To arrive at a reasonable valuation, we had to adopt the optimistic perspective that Ferrari stands among the best performers in the selected sample. Due to the wide range of share prices derived from various multiples, we believe this method may not be the most suitable approach for evaluating this company. Equity Research Team
[76] Apparel and Accessory stores (AAS): SIC 5200-5299; General Merchandising Stores (GMS): SIC 5301-5399; Automotive dealers and gasoline service stations (AD): SIC 5500 – 5599; Motor vehicles and motor vehicles equipment (MV): SIC 3700-3799
[77] Minimum and maximum acquisitions were disregarded to account for the existence outliers. Equity Research Team

Chart 46
Multiples valuation
(in units)



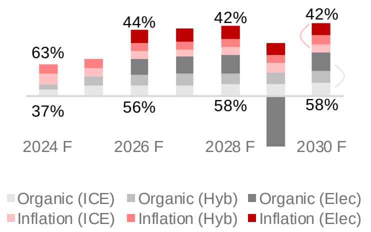
Source: Yahoo Finance, multiple sources

Chart 47
Sensitivity analysis
(Share price in €)



Source: Equity research valuation model

Chart 48
Drivers of change in nominal prices of cars
(Percentage %)



Source: Equity research valuation model

Table 12
Sensitivity of price target to risk free and perpetual growth rate of cars
(in percentage %)

Price target	0.5	1.0	1.8	2.6	2.7	r_f
	4.4	4.8	5.3	5.9	6.0	WACC
2.0	372					BUY
3.0		362				HOLD
3.5			348			HOLD
3.8				$\boxed{350}$		HOLD
4.0					353	HOLD
$g_{t(c)}$						

Source: Equity research valuation model

decades. As inflation rises, investors demand higher yields (higher cost of debt) to compensate for the eroding value of fixed interest payments. Given the relatively inflated German Government Bond yields (Chart 40), a key component of the WACC (risk-free rate), the variability of the WACC tends to trend downward, inflating the share price adjustments more than deflating (Chart 46).

Growth rate: As mentioned before, the terminal growth rate of cars and spare parts converges to 3.8%. The value is sensitive to variations in Ferrari's strategy, product demand, competition, technology disruptions, legal frameworks, and other factors. Inversely to the WACC, the deflating potential of terminal growth is more probable, decreasing the overall valuation. In fact, long-term growth assumed in this valuation report has been above of Ferrari's own assumption of 2% (DCF Valuation section).

Impact of inflation on Ferrari's valuation: Government yields and inflation tend to be positively correlated to compensate for the real value deterioration of yields. The stated risk-free rate at 2.6% (WACC section) implies that the discount rate applied on future cash-flows is also inflated, driving the valuation down. However, inflation is also implicitly incorporated in the model's prices, with an elevated impact in the revenues of cars and spare parts (Chart 47). Free cash flows are affected by spillover and eventually, the perpetual growth rate of cars, one of the most pondering factors in Ferrari's valuation. Analytically, we believe both should cancel out in the long run, as they are expected to move parallelly, but having contrasting effects in the valuation (Table 12).

Monte Carlo Simulation: To assess the potential impact of the quantifiable risk of our valuation regarding the WACC and terminal value growth of Cars, we carried out a Monte Carlo simulation, with a standard deviation of 0.1% and 0.2% respectively. The main results of our analysis are approximately: 29% of the outcome support a SELL recommendation, while 37% and 34% support HOLD and a BUY respectively. The output distribution is right-skewed (negatively skewed), as seen in Chart 48.

Retention Ratio and RONIC: To reach terminal value growth rates of all but Engines[78], the assumed steady state RR was multiplied by RONIC. The retention ratio is higher in capital-intensive units of the firm - Cars and Spare Parts – with a steady state interval of variation of 1% and 2% respectively (Chart 46).

Shares outstanding: Ferrari is currently executing a share buyback program scheduled to continue until 2024. The number of outstanding shares varied primarily in the lower tail of the interval since the projected number of shares repurchased was made at average historical value (Share Buyback section). The

[78] Perpetual growth was considered at the historical growth rate of prices of raw materials (Engines Section). Equity Research Team

interval ranged from negative 10% to positive 5% (Chart 46).

Scenario Analysis

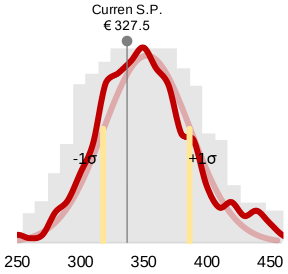
The alternative scenarios (downside and upside) were based in the assumptions for the forecasted results of the value drivers, with some common and case-specific variations[79] (Table 13). In the optimistic scenario, the share price exhibits an upside variation of 41.6% (BUY), excluding capital gains. Downside variation had a lower magnitude of negative 25.1% capital gain, leading to a SELL recommendation. Our assumption is that both scenarios share a 10% probability of materializing as the future reality of Ferrari.

Investor consensus and final remarks

Table 14 holds some of the financial consensus[80] regarding the Italian brand's stock price after the third quarter results were published. The distribution gravitated towards HOLD (56%) as analysts are concerned about the year 2024 (refer to Marco Overview). Regardless 2023 is promising, with annual results expected to follow the development seen throughout the year[81]. Further, 2025 is expected to be another great year for Ferrari as they unveil their new alternative mobility solution powered solely through electricity, which is expected to bring an uptick in demand for the brand as they turn greener.

The stock is currently trading at 58x earnings, which is deemed high for a company with supply chain reliance. Even with earnings multiple expected to decrease to 48x[82] by the end of next year, it is still considerably higher compared to European luxury, trading at an average of 23x 12-month forward earnings[83]. Macro headwinds like Taiwan's elections could burst another sequence of unexpected events that could impose threats on chips used in car manufacturing (Qualcomm[84]). Nonetheless, (as of the 17th of December of 2023 – with the previously mentioned data accountable to such date) with an expected capital gain of 6.9%, a cash gain of 0.8% (dividend yields), and the previously mentioned impacts of the scenario analysis, the final price target is € 353, providing an upside gain of 8.61%. Henceforth, the final investment recommendation is HOLD.

Chart 46
Monte Carlo Simulation
(Share price in €)



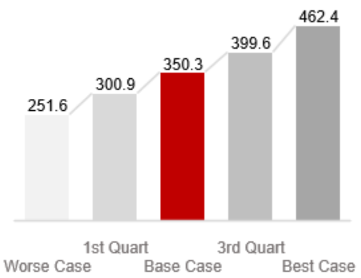
Source: Equity research valuation model

Table 13
Scenario analysis main captions

2024 F	Downside	Base Case	Upside
FCF	863,673	1,013,033	1,261,197
g_{2024}	22.0%	13.0%	46.0%
$g_{t(c)}$	3.85%	3.87%	4.05%
ROIC	23.0%	28.0%	30.0%
RONIC	5.0%	21.0%	31.0%
WACC	5.9%	5.9%	5.9%
Price target	€ 251.6	€ 350.3	€ 475.9
Capital Gain	-25.1%	4.2%	41.6%

Source: Equity research valuation model

Chart 50
Scenario Valuation
(Share price in €)



Source: Equity research valuation model

Table 14
Equity research analyst's view in Ferrari stock, by major investment banks

Publish date	Company	Opinion	Price target
06-Nov	DBS	Strong Buy	€ 400
06-Nov	Evercore ISI	Strong Buy	€ 362
06-Nov	Barclays	Buy	€ 337
03-Nov	Morgan Stanley	Buy	€ 337
03-Nov	JP Morgan	Hold	€ 335
04-Nov	Kepler capital	Hold	€ 320
08-Nov	Bernstein	Hold	€ 310
08-Nov	Goldman Sachs	Hold	€ 305
02-Nov	Equita	Hold	€ 303
Share price at 03/11/2023			€ 309

Source: Business Insider, Street Insider, multiple sources

[79] Upside and downside variations: 20% deviation in sales of cars, for increasing distribution (online); PP&E variation range (16%), for increasing productivity of new PP&E purchased; 5% variation in sales for Bitcoin payment acceptance in the US and -10% in downside (crypto volatility); 20% deviation in licenses and patents for Sponsorship segment; 3% raw materials price decrease for engines; renewal of engine subcontract for formula 1; decrease in 10% of sales of Brand associated to raw material price decrease; achieving an average of 2nd place for best case, 4th place in formula 1 championship (vs current 3rd place); variation of sponsors (by 3) for sponsorship revenue calculation. Equity Research Team
[80] Ferrari. (n.d.). Analyst Coverage | Ferrari Corporate - Ferrari.com. https://www.ferrari.com/en-EN/corporate/analyst-coverage
[81] RTTNews. (n.d.). Ferrari lifts FY23 view after strong Q3 results; Stock up. Nasdaq. https://www.nasdaq.com/articles/ferrari-lifts-fy23-view-after-strong-q3-results-stock-up
[82] Price target 2024 at € 350.25 and Earnings per share forecasted at 7.2: $Earnings\ Multiple = \frac{Price\ per\ share}{Earnings\ per\ share}$
[83] Raitano, L. (2023, January 31). Europe's luxury stocks have room to rise, but becoming costly. Reuters. https://www.reuters.com/markets/europe/europes-luxury-stocks-have-room-rise-becoming-costly-2023-01-31/
[84] Bell, S. (2022, February 9). Ferrari announces partnership with chip manufacturer Qualcomm. Carscoops. https://www.carscoops.com/2022/02/ferrari-announces-partnership-with-chip-manufacturer-qualcomm/