

Work Project

Master's in Finance and Financial Markets

Class of 2024

Title: Porsche IPO Valuation: was the stock undervalued or overvalued

Field of Study: Finance

Purpose: Dissertation for obtaining the Degree of Master in Finance and Financial Markets

Author: Filipe Viana de Carvalho Luz Campina

Advisor: Paulo Pinho

Discussant: Fernando Anjos

President: Rui Silva

Date of the defence: 27th November 2024

Abstract

This work project assesses the value of Porsche AG at the time of its IPO on September 29, 2022. The analysis begins with an examination of the motivations behind the IPO, Porsche's unique positioning in the market as either a luxury or premium brand as well as identifying relevant comparable companies.

Findings from the valuation suggest that Porsche AG's IPO was launched at a discounted price. This underpricing may be attributed to challenging conditions in the automotive industry still affected by the lingering impacts of the COVID-19 pandemic. Other reasons may fall to the company's complex corporate structure closely linked to Volkswagen AG.

Keywords: Porsche, IPO Valuation, Overpricing/Underpricing, Equity Carve Out

Acknowledgements

I want to thank my father, Fernando Luz Campina, to whom I also dedicate this work, for always being there when I needed him and to always backing my ideas and wishes even when they were too crazy to pursue.

To my sister Inês for always trying to show me the right path even knowing that sometimes I won't listen.

To Rui, my friend since forever, thank you for the discussions, the late night philosophical what ifs and all the help in this and all of my other endeavours.

To my Nova colleagues, Rui, Nuno, Tiago and Tania, thank you for all the help in this journey, it was a lot more enjoyable and fulfilling with you.

To my teammates at BNP, Diogo, Maria, Martim and Marta that gave me the support, time and understanding to finish this project.

To my advisor, Professor Paulo Pinho, thank you for accompanying me on this quest, for all of the conversations, the steering in the right direction and to all of Nova SBE's teachers, thank you for nurturing my interest in finance.

My thanks to you all.

- *“Sic parvis Magna”*

Motives for going public

The rationales for undertaking an IPO, or Initial Public Offering can vary wildly but predominantly fall within two overarching categories, a strategic reason or a financial reason (Ritter & Welch, A Review of IPO Activity, Pricing, and Allocations, 2002). This is a decision far from simple or direct, demanding extensive preparation and a recognition that it will fundamentally transform the company's nature and its future.

Considerable literature has delved into the motivations of going public, revealing that those two motivations often coalesce, revealing a combination of reasons and factors. Among those reasons, some appear more often like the founders seeking an exit strategy, the financing of future projects, a restructuring of the capital structure, facilitating a possible merger and acquisition, reducing the cost of capital, enhancing the corporate reputation of the company and its managers or establishing a market valuation, just to mention some of the most relevant (Brau & Fawcett, 2006).

Empirical studies indicate that a substantial motive for an IPO is raising capital for new projects. This is attributed to the urgent need for capital infusion in research and development (R&D) in a quest to keep pace with the rapid growth of markets and heightened competition (Chemmanur & Fulghieri, 1999).

Another common motive for IPOs is the facilitation of mergers and acquisitions (M&A), giving companies access to equity, which they can use for financing acquisitions rather than relying solely on cash and loans (Brau & Fawcett, 2006). This expanded financial avenue not only spurs an increase in M&A options and activities, but also enables companies to align employee interests with company performance by offering compensation through company shares.

The restructuring of the balance sheet is another prevalent reason for going public, enabling companies to free up cash for alternative projects or to meet existing financial obligations (Wyatt, 2013). In terms of the actual value of the company, public listing enables a more transparent valuation which eliminates uncertainties about the company's worth and establishes a market determined value (Hsieh, Lyandres, & Zhdanov, 2011).

A known effect of going public is that it contributes to a reduction of the cost of capital. As Hale and Santos (2009) argue, given most companies' reliance on banks, a market determined valuation reduces the asymmetries in information between rival banks, which in turn reduces the cost of capital.

Another spectrum of the argument for going public, Bodnaruk et al. (2008) defend that going public serves as an effective mechanism for founders and venture capitalists to exit their projects partially or even entirely. This enables investors to diversify their portfolios and mitigating their risk exposure that is tied to the company's success.

When we pivot to discussing companies that were previously held by other companies, the act of going public can signify a search for autonomy from the larger group and with that, the freedom to pursue distinct directions and projects. This is particularly helpful to companies that for some reason are being held back by the size and bureaucracy of larger groups. In these cases, an IPO not only provides the selling group with a large infusion of cash, but also gives it the ability to carve

out the company from itself while maintaining a degree of control and profit, depending on how much of the company they are putting up on the public market.

Lastly, but no less important than the above reasons, are the optics of a company going public. As Bodnaruk et al. (2008) defend, the action of entering the public market creates a degree of confidence in both the company's management and the banks that are assisting in the IPO, reinforcing the belief that the public will discern the intrinsic value of the company. The success of the process augments the credibility and visibility of both the company as an independent entity as well as its managers in the public domain.

Consequently, it is reasonable to infer that the decision to take a company public does not come down to a singular motive but rather a myriad of factors, encompassing not only strategic and financial considerations but also personal and sometimes emotional reasons.

Divesting strategy for large companies

In the day-to-day discourse surrounding corporate affairs, it is usual to hear about enterprises expressing an interest in acquiring one another, however the opposite also happens, or in another way to put it, a divestment happens. This strategic option is propelled by the anticipation that such divestiture will yield greater profitability in the future for the parent company.

The reason for such action can be justified in a number of ways. The most noticeable being the infusion of capital the selling company received from selling part of itself. Also, it mitigates or completely nullifies the need for ongoing investment or future investments on the divested company, allowing that free capital to be invested in other parts of the company. It is note worthy that retention of a stake in the divested company positions the parent company to accrue long-term benefits in line with the success of the divested venture.

Specifically, the present analysis centres focus on the scenario where a parent company opts for divestment through an IPO, while retaining partial ownership in the newly established company. In such scenario, the parent company harbours optimistic expectations regarding the future of the new company, envisioning a growth in profitability for itself as a shareholder.

The underlying rationale for divesture, signifies that the parent company believes that the newfound company's market visibility will be substantially enhanced, particularly given the forecasted success of the IPO.

Liberation from the complexities and size of the parent company enables the new entity to concentrate on specialized products and segments, thereby targeting its more important consumers and its investors, who gain a clearer picture of the road ahead.

This enhanced clarity renders the new company more attractive to investors has it shows a clearer market direction and a firm distinction from the larger company. The resultant streamlined balance sheet and operations afford better resource allocation, substantiating the strategic and financial decision behind the divesture.

Collectively, these considerations underscore the parent company's expectation that the new company will attain a higher valuation in its independent operational sphere, something that would be difficult or even impossible if part of a bigger entity.

What defines a luxury brand

"The Ferrari is a dream – people dream of owning this special vehicle, and for most people it will remain a dream apart from those lucky few." – Enzo Ferrari

The definition of a luxury item or brand is fundamentally more psychological than empirical, creating an ardent debate throughout the years and still not arriving at one single conclusion (Mortelmans, 2005).

However, more nuanced attributes contribute to the characterization of a product as luxurious. Such characteristics can be elements of superior quality, the provision of authentic value, a prestigious image underscored by elevated craftsmanship or quality of service, a capacity to command a premium pricing and the ability to evoke profound connections with the consumer (Ko, Costello, & Taylor, 2017).

Contrary to conventional business paradigms, where companies prioritise volume of sales to maximise their revenue, luxury production exhibits the opposite philosophy. Luxury brands deliberately cultivate an aura of scarcity, engendering exclusivity that only a select clientele can attain, be it either by the high price demanded or by the reduced access. This strategic approach parallels the rarity concept observed in precious stones, where heightened scarcity directly correlates with augmented value, a principle equally applicable to the domain of luxury items.

In its essence, a luxury brand is emblematic of status, extending beyond financial considerations to encompass accessibility. The core tenet resides in not maximizing product sales, but rather, commanding a premium price for the product, thereby projecting exclusivity and the inherent prestige associated with ownership.

Process of going public

The choice to pursue a public offering is a profound and challenging decision for any company, as it fundamentally alters their nature and has lasting effects on their future governance. This transformative process commences up to two years before the actual day of the IPO as it requires meticulous planning and coordination with several key players. The players involved the several stages of the IPO process are the issuing firm, the underlying bank or collective of banks, investors, regulatory bodies overseeing the IPO and finally the stock market where the listing will occur.

The IPO journey is comprised of four distinct phases: the IPO planning phase, where the company readies itself financially and strategically; the IPO preparation phase, setting the groundwork for the actual transaction; the IPO transaction phase, involving the issuance of the shares to the public; and finally, the post-IPO work phase (Ernst & Young, 2021).

During the IPO planning phase, the company solidifies its decision to move forward and prepares for what is coming their way. One of the first moves is to secure the services of an underwriting bank, also known as a lead bank, so it can list its shares on the public market. The selection of this underwriting bank, whether a sole institution or a group of banks, also known as a syndicate, is a complex and difficult decision.

Factors that influence this choice include the bank's reputation, industry and segment expertise and research quality (Braun & Fawcett, 2006). These factors matter significantly as the chosen underwriting bank greatly influences initial investor quality and interest and also the long-term performance of the company (Corwin & Schultz, 2005).

As we transition to the IPO preparatory stage, the lead bank assumes a more prominent role. Here, the bank spearheads the preparation of essential materials, such as the IPO fact book and presentation materials for possible investors, business analysts and even other banks. At this point, the target IPO timetable is established and the due diligence initiates. It is at this juncture that a valuation framework starts to take shape (Ernst & Young, 2021).

Moving on to the third step, we have the IPO transaction phase, which typically kicks off one to six months prior to the IPO date. It is at this stage that the underwriting bank compiles financial and ESG information, along with other critical content for the offering prospectus. Subsequently, regulatory approvals from both regulators and the chosen stock exchange are sought out.

During this time, the roadshow is initiated with the aim of attracting suitable investors with the right market timing. This concerted effort is geared towards constructing the IPO order book, enabling the underwriting bank to ascertain the issue price and allocate orders to the right investors. This is a laborious challenge because not every investor is suited to obtain shares at the IPO, as companies would prefer investors that keep the shares for a period of time after they are available in the market.

Following the IPO day, we enter the fourth and concluding phase of the process, known as post-IPO work. The underwriting bank or banks are tasked with overseeing the expectations of the newly public company as well as those of the investors who acquired shares in the company. Reports play a vital role at this stage, as it is crucial to ensure accurate forecasting materials and sustain the excitement surrounding the new company beyond the initial days or even initial hours (Ernst & Young, 2021).

But, before the actual IPO happens, the issuing company and the lead bank need to agree on how the shares will be sold to the public or in other words, on what type of offering will it be. Concerning said offering types, the three most commonly chosen are: a commitment deal, a best effort deal and lastly an action IPO.

The predominant option is the commitment deal, wherein the underwriting bank or banks acquire all the shares upfront, thereby ensuring their successful sale in the IPO. The bank then sells the shares to the investors they lined up for the IPO. If demand falls short of expectations, the bank will be forced to sell the shares at a reduced price, resulting in a loss on the transaction.

Conversely, the best effort deal entails the underwriting bank striving to sell the shares at the best possible price, but the success of the IPO is not guaranteed. If the demand falls short of what was expected, the IPO is aborted, as best effort deals are typically all-or-none arrangements.

The third offering mechanism is the auction IPO. In this arrangement an online auction is conducted where participants propose their bid. In this case, the underwriting bank does not establish a starting price. Upon the auction's conclusion, all shares are sold at the respective price even if there are overbids. This methodology aims to establish an equilibrium between supply and demand (Berk & DeMarzo, 2016).

Companies, wanting to mitigate any risk, tend to prefer the commitment deals as it takes away the uncertainty element of the IPO.

Underpricing or Overpricing

In the context of Initial Public Offerings, there are two notable phenomena of notice, namely the underpricing anomaly and the overpricing anomaly as studied by Ritter (2002). Extensive studies have been made on these two subjects, with underpricing enjoying a more comprehensive understanding compared to the still debated overpricing anomaly (Leite, 2000).

While the underpricing effect has a significant abnormal return on its first day of trading, overpricing is the opposite case. That being said, both phenomena share a commonality rooted in the distinction between less-informed and better-informed investors.

Underpricing, extensively documented since the 1970s, finds its early studies in Logue (1975) and Ibbotson (1975), but it's Ljungqvist that categorizes the rationales for underpricing into four distinct domains: asymmetric information, institutional factors, control considerations and behavioural perspectives. While the asymmetric information studies are the most prevalent, there is a growing importance in the studies regarding behavioural approaches.

In some light, underpricing serves as a compensation mechanism for better-informed investors, offsetting their information acquisition costs related to the new issue (Chammanur, 1993). The ability for investors to withdraw from the issue on the face of unfavourable information can add value, which is typically captured by the issuer.

On the other spectrum, overpricing, a more prevalent phenomenon than underpricing, poses a perplexity: why would rational, profit-maximizing investors engage in securities that, on average, depreciate during the initial trading day? (Leite, 2000). Two of the main possible explanations for this is the prevalence of less-informed investors and media-induced stock hype, suggesting behavioural underpinnings.

The overpricing phenomenon creates some advantages for the issuer, namely the ability to capitalize on the elevated issue price. However, excessive overpricing leading to a substantial subsequent decline may cause lasting reputational harm to the issuer.

In both instances of underpricing and overpricing, the salient question revolves around information dynamics, with disparities among the involved parties in the IPO constituting the predominant driver of the price differences.

A deep dive into Porsche

Porsche Philosophy

“I wanted to build cars that were not something to everyone, but meant everything to some.” – Ferry Porsche

In 1931, Ferdinand Porsche, alongside Adolf Rosenberg and Anton Piëch, founded what is now renowned as one of the world’s most memorable companies under the name “Dr. Ing.h.c.F. Porsche”, a succinct representation of Ferdinand Porsche’s engineering doctorate.

Initially specializing in motor vehicle development and engine design consulting, one of the company’s first assignments was to design affordable cars for daily use for the German Government, or in other words a “volkswagen” or “people’s car”. From this project, the car still known today as The Beatle is born and so is what would become one of the biggest automotive conglomerates in the world, Volkswagen.

Alongside several different projects and his extensive experience as a racing car engineer at Daimler-Benz, it was in 1948, seventeen years after the creation of his company, Ferdinand Porsche and his son Ferry created their first sports car, the first totally designed and produced by Porsche, the Porsche 356/1 (Porsche AG, 2022).

Always maintaining the lines and building philosophy that Ferdinand Porsche nurtured through out the years, in 1964 the company built its most iconic car, the Porsche 911. Not only it grown to be the most loved car in the Porsche catalogue, but is today one of the most recognized sports cars in the world and symbol of luxury and status.

It was with the 911 model that Porsche transcended the racing car label towards the more exclusive premium brand status, not only thanks to the high quality in design and high-end materials that Porsche demanded, but also for a more ethereal reason. Owning a Porsche was now a symbol of status.

Although Porsche was always entwined with Volkswagen, it was only in July 2012 that Volkswagen fully finished its acquisition of Porsche, with the understanding that their way of doing things was the key to their success. It was this way that Porsche was able to maintain its philosophy in car design as well as personalized customer service, prioritising not the amounts of cars sold a year, but their quality and attention to the costumers needs and desires.

It was with that independent spirit, and learning with the Ferrari example in 2015, that Porsche realized that to fully be seen as a truthfully premium brand, it needed to part ways with the “people’s car” brand, Volkswagen. To this end, in September of 2022 the Porsche IPO was finalized and the

company became independent again, although Volkswagen still retains a substantial ownership stake.

By the close of 2022, Porsche employed 39,162 individuals and manufactured 321,321 vehicles, with a price range of EUR 150,000, with older, more collectable models skyrocketing to the millions. Porsche was able to not only create cars, but pieces of art that people around the world want to own and display for all to see.

Among more than 50 distinct models produced over its 91 year history, the Porsche 911 stands out as the most iconic, retaining its distinctive lines across decades. Other noteworthy models include the Porsche Boxster and the Porsche Panamera, which represents the brand’s first four-seater, that although it initially received mixed reviews, ultimately proved to be one of the company’s bigger success stories.

The Porsche Cayenne, also an initially a contentious model, emerged as one of the best selling models of Porsche, cementing its place in the SUV space and becoming one of the most sought after model in 2022.

Porsche’s most recent bet is the Taycan model, the brands entry into the realm of fully electric vehicles. It symbolises a pivotal shift in the automotive landscape and a focal point of the September’s IPO strategy (Porsche AG, 2022).

Regardless of the model or the year, the enduring philosophy holds true – a Porsche is eternally a Porsche.

Pre-IPO organisational structure

Ever since its creation in 1931 by Ferdinand Porsche and Anton Piëch, the company has been one of the world’s leading manufacturers of luxury and sports cars. Dr. Ing. h.c.F. Porsche AG, founded in Stuttgart-Zuffenhausen has since its early days been entwined with Volkswagen, creating a complex ownership structure that still lingers to the present day. It wasn’t until the end of 2022 that Porsche became an independent company.



Structure before the transaction.
 Note: Schematic Overview
 1) Ordinary shares

Figure 1: Porsche SE and Volkswagen Organizational Structure - Pre IPO (Astroman Magazin)

In 2007, the remnants of the original Dr. Ing. h.c.F. Porsche AG were reorganized into Porsche SE, a holding company that owned 100% of the newly formed Porsche AG, dedicated to car manufacturing and also held 31.3% of Volkswagen AG. This structure allowed the Porsche and Piëch families to maintain a majority position in both Volkswagen AG and Porsche AG.

Following this change, Porsche SE continued to increase its stake in Volkswagen AG with the long-term goal of taking control of the company. However, in 2009, this attempt failed, resulting in Porsche SE losing direct control over Porsche AG. Thanks to the symbiotic relationship between both companies, the families were able to remain indirect shareholders of Porsche AG through their stake in Volkswagen AG.

As of December 2022, Porsche SE holds 53.3% of all ordinary shares of Volkswagen AG, corresponding to 31.4% of Volkswagen AG's subscribed capital. Although Volkswagen AG is Porsche SE's largest investment, the holding company also has substantial interests in Porsche Engineering, Porsche Design Group and INRIX, an American traffic information provider.

Volkswagen AG has grown into a multi-brand conglomerate, combining several subsidiaries under its corporate umbrella. By the end of 2022, it had firmly established itself as the world's largest automobile manufacturer in terms of revenue.

The group is divided into two main areas: the automotive division and the financial services division. The financial services division focuses on the financing and leasing services as well as financial markets positions. On the other side of the coin, the automotive division is segmented into three main areas of action: passenger vehicles, commercial vehicles and motorcycles.

The passenger vehicle segment is comprised of the Volkswagen Passenger Cars, Škoda, SEAT, Audi, Bentley, Bugatti, Lamborghini and Porsche. The motorcycle segment features the Ducati brand, while the commercial vehicle segment includes the Volkswagen Commercial Vehicles, Scania and MAN.

The success of Volkswagen AG can be partly attributed to the fact that barring the Volkswagen Passenger Car and Volkswagen Commercial Vehicles, all subsidiaries operate as independent entities.

Holding Porsche AG through a specialized holding company allowed Porsche to establish a distinctive position within the Volkswagen Group, as it was separated from the others subsidiaries even prior to its IPO.

Porsche's Public Offering justification

The Porsche IPO in September 2022 was driven by a range of strategic and financial objectives for both Porsche and its parents' company, Volkswagen Grupo (VW). One of the primary motivations for this was Volkswagen's need to finance its transaction to electrification and digitalization. The shift from fossil fuels to electric technology, the development of electric vehicles (EVs), battery production plants and the push for autonomous driving technologies is expected to cost around EUR 50 billion. The IPO was designed to inject significant capital in these efforts, enabling

Volkswagen to fund its growth without drastically increasing its debt. This financial flexibility is critical for Volkswagen to accelerate its transformation in an increasingly competitive and demanding industry.

With this strategy, Volkswagen's vision aims to solidify its leadership in electrification, digitalization and sustainability. By leveraging Porsche's IPO, Volkswagen sought to establish itself as the frontrunner in electric innovation within the luxury sports car market. It hopes that the advancements in Porsche's electric capabilities would eventually cascade to other models in the Volkswagen portfolio.

From Porsche's perspective, the IPO emulated the strategic split between Ferrari and Fiat in 2014. This move was not only about long-term financial planning, but also about the market's perception of the brand. As part of the Volkswagen Group, Porsche's unique value wasn't fully recognized in Volkswagen's broader market valuation. It was Porsche's view that an independent listing would allow for a distinct valuation, fully reflecting the company's standing as a high-margin premium automotive brand. This break away would enhance Porsche's image as a luxury brand, capitalizing on its potential and strengthening its position in the high-end automotive market.

Another significant point for Porsche, as outlined in the IPO prospectus, is the promise of greater autonomy and the entrepreneurial freedom it would gain. While Porsche would still have access to Volkswagen's resources, the new, more agile and independent structure would allow for faster and more precise decision-making. This increase in operational independence would empower Porsche to react more swiftly to market demands and innovations.

For investors, the IPO offered an appealing opportunity. By becoming a public listed company, Porsche would have greater transparency over its daily activities as well as a stricter corporate governance, qualities that more sophisticated investors usually look for. This would boost investor confidence and enhance the brand's credibility in global markets. The expectation was that the separation from the Volkswagen Group would broaden Porsche's investor base, attracting those focused on luxury brands and sustainable mobility. Porsche's status as one of the most profitable and iconic luxury carmakers is expected to resonate with investors seeking to own a piece of automotive history.

Although this is what Volkswagen advertised as one of key reasons for the IPO, as well as the carve-out would help Porsche dissociate itself enough from Volkswagen that the conglomerate discount would not apply, investors still had their reservations. Volkswagen would still own 75% of Porsche's shares (see exhibit 2.0), remaining its largest shareholder.

Adding to these reservations, the fact that Oliver Blume the Chairman of the Board of Management of Volkswagen AG would also be the Chairman of the Board of Management of Dr. Ing. h.c.F. Porsche AG clearly sends a message that this IPO does not aim to remove Porsche AG from Volkswagen sphere of influence.

Finally, although not widely publicized, the IPO would also serve the interest of the Porsche and Piëch families. After the failed takeover of Volkswagen in 2009, their influence over both companies diminished. The IPO, however, by the way it was structured, thanks to the split into

voting and non-voting shares, would allow these families to regain nearly full control of Porsche through their direct stakes in both Porsche SE and Volkswagen AG, giving them a decisive role in the strategic direction of Porsche AG.

In summary, the decision to take Porsche public supported Volkswagen’s immediate need for capital to fund its ambitious and necessary investment plans, while also enabling the Porsche and Piëch families to regain their long sought control. The IPO was a carefully calculated move, balancing the financial objectives of the Volkswagen Group with the long-term brand positioning strategy of Porsche.

The Porsche IPO

After much speculation and anticipation, the Porsche’s IPO took place on September 29th of 2022 on the Frankfurt Stock Exchange, offering 12.5% of its shares under the ticker P911, named after the model that propelled Porsche into History. With an initial share price of EUR 82.50, it quickly became one of the largest IPOs in European history. At the time of the offering, Porsche’s total share capital amounted to EUR 911 million, equally splitted into 455.5 million preferred shares and 455.5 million shares with a nominal value of EUR 1.00 each.

The total of 113,875,000 shares comprised of 99,021,740 base shares and 14,853,260 over-allotment shares that were offered for trading, which represented the 12.5% of Porsches’ total outstanding capital (Porsche AG, 2022).

It is important to note that all of the shares issued for trading were preferred shares, meaning they do not carry voting rights, but offer a full preferred dividend and an additional premium of EUR 0.01 per share. Despite the preferred shares having priority in dividend distribution, preferred and ordinary shares are treated equally in the event of insolvency (Porsche AG, 2022).

Following the roadshow and preparations, the shares were priced between EUR 76.50 and EUR 82.50, with the final price set at the top of the range due to significant oversubscription. The IPO raised EUR 19.5 billion for the Volkswagen Group as it sold 25.0% plus one ordinary share to Porsche SE. Of that total amount, almost 50.0% was paid to shareholders as a special dividend and the remaining capital to be invested in the electrification effort.

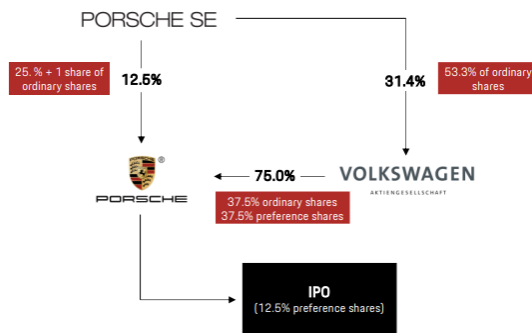


Figure 2: Post IPO Organizational Structure (Raymunt 2022)

Despite coming a little short of Bank of America's forecast and the concerns about the timing of the IPO given the uncertainties in the automotive market due to the pandemic and current raw materials constraints, the offering was considered a success. It provided the Volkswagen Group the much needed capital infusion for its ambitious goals and allowed Porsche to operate as a distinct entity, no longer subject to the conglomerate discount it had when associated with the broader Volkswagen Group.

The Market

Landscape of the Market

Porsche's product portfolio is firmly positioned within the luxury automotive segment, which in itself is a subsegment of the broader luxury goods market. The global personal luxury goods market is valued at approximately EUR 1.14 trillion, with a compounded annual growth rate (CAGR) of 6.0% in the years between 1996 and 2019. This number is largely driven by factors such as increasing consumer purchasing power, as well as the overall global macroeconomic environment (Bain & Company, 2021).

A key consumer group in this market are high-net-worth individuals (HNWIs), which are those with a net worth from EUR 1 million to EUR 30 million. From 2016 to 2021 this group saw a robust growth at a CAGR of 10.0% and is expected to continue to grow at a 9.0% CAGR through 2026. This growth trend is particularly strong in markets where Porsche has a strong presence like China (13.0%), the USA (9.0%) and Europe (9.0%), all regions where Porsche would benefit from increasing demand.

An important demographic shift within this group is the rising share of women, which is significant for Porsche and its Cayenne and Macan SUV models are particularly popular among female buyers. Another important shift in demographics is the increasing number of younger generations in this segment of the market, mainly Millennials and Gen Z. these groups strongly value digital solutions and sustainability, two areas where Porsche has made substantial strides and which the company tends to focus its efforts for future growth (Deloitte, 2022).

According to a report by McKinsey (2022), these macroeconomic trends are reshaping the luxury landscape, with customer experience, personalization, brand strength and awareness, and sustainability driving top-line growth in the luxury automotive sector. Despite these pressures, the luxury market is projected to grow at a CAGR of up to 8.4%, compared to the 1.0% CAGR for the non-luxury market.

The luxury automotive segment, defined by vehicles with a price point above EUR 80,000 accounts for about 2.0% of the global automotive market. This segment can be further broken down by price range, as we have models that cost around EUR 80,000 and models that can go further than EUR 500,000. In addition to faster growth, the luxury car market achieves substantially higher profit margins than non-luxury brands. As the adoption of battery electric vehicles (BEVs) continues to grow, profit margins are projected to increase, with earnings before interest and taxes (EBIT) expected to reach 21.0% to 25.0% by 2031 (McKinsey & Company, 2022).

This market is characterized by high barriers of entry, with established players like Porsche enjoying advantages in several areas such as innovation, performance, brand strength and awareness.

The Porsche's portfolio is comprised of sports car, sports limousines and SUVs, with price ranges between EUR 80,000 and EUR 300,000 before customization. Despite the difficulty in entering and innovating in this space, competition is intensifying. The luxury sports car and SUV segments are expected to grow at 7.0% and 6.0% CAGR respectively through 2026. This growth can be explained by consumer preference for SUVs and the introduction of more BEV models in the market. A perfect illustration of this shift is Ferrari's recent entry into the SUV space with the Purosangue model and the success of the Lamborghini's Urus. This trend is also seen at Porsche, where the Macan and Cayenne models accounted for more than 50.0% of the company's total deliveries in 2021.

At the higher end of the luxury market, comprised of supercars and hypercars that are priced above EUR 500,000, the growth rate is even more pronounced, with a projected CAGR of 14.0%. This space is dominated by brands like Ferrari, McLaren, Bugatti and Lamborghini, with Porsche having only the 918 Spyder model as its recent hypercars offering.

Two of the increasingly important key themes within the luxury car market are electrification and sustainability, as BEVs are expected to make up 50.0% to 80.0% of portfolios across all segments by 2031. This trend is fueled by a combination of strong demand, supply factors and upcoming regulations. On the demand side, keeping up with the shift in demographics, around 70.0% of luxury car owners express an interest in transitioning from internal combustion engines (ICEs) to BEVs. Looking at the supply side, the shift is being driven by advancements in technology coupled with regulatory pressures to meet zero-emission targets and difficulties caused by the geopolitical instability (McKinsey & Company, 2022).

The luxury car market is benefiting from increased demand in China, where consumers have a strong appetite for customization and digitalization, making technological integration crucial for meeting their preferences (McKinsey & Company, 2022).

Overall, luxury automotive brands are increasingly adopting strategies from other luxury sectors, such as offering a personalized customer experience and maintain a consistent global brand presence and identity. This shift in perspective is leading brands to embrace direct-to-consumer approaches that enhances customer loyalty and also proved deeper consumer insights. This approach tries to combat the declining loyalty rates in the luxury market overall, a trend that Porsche has been able to resist, maintaining high customer loyalty compared to other brands (Berenberg, 2022).

Despite its resilience, the luxury car market is not immune to geopolitical and economic challenges, such as the war in Ukraine and the rising tensions in the Middle East, which are disrupting supply chains and adding pressure on the energy sector. Additionally, the automotive industry continues to face bottlenecks in the supply of microchips, issue that has been exacerbated by COVID-19 outbreaks and subsequent trade disruptions, which have yet to recover fully.

Reacting to rising legislation aimed at banning ICE vehicles, luxury car manufacturers are accelerating their BEV rollouts. Increasing awareness of the carbon footprint of ICE vehicles coupled with consumer sentiment is also driving this accelerated transition to BEVs. After successfully launching the first all-electric sports car, the Taycan model and committed to expanding its electric range to reach 80.0% new BEVs by 2030, Porsche is well positioned to benefit from these regulatory and market shifts (Porsche AG, 2022).

Business model and financial performance

Porsche's revenue is driven by two main pillars. Accounting for 90.0% of its total revenue, the most relevant pillar is the sales of luxury cars. Since its inception, Porsche has successfully expanded its portfolio beyond the classic two-door sports cars to include sports limousines and sports utility vehicles (SUVs). Also, with the success of the recent launch of the fully electric Taycan model, Porsche has introduced a model that bridges the limousine and SUV segments for the first time.

Currently, Porsche's portfolio includes six different models across three segments. In the sports car category, the lineup consists of the iconic 911 model and the 718 series, which features the Cayman and Boxster models. In the sports limousine segment, the company offers the Panamera and the electric Taycan, although as said above, the former can be seen as a model between sports limousines and the SUV line. Finally, the SUV segment is comprised of the Cayenne and Macan models. While the 911 remains Porsche's most iconic and recognizable car, the move into the SUV space has proven crucial. As of 2021, 57.0% of Porsche's total deliveries were SUVs, driven by the strong performance of the Cayenne and Macan models.

The remaining 10.0% of Porsche's revenue comes from its second main pillar, the vehicle leasing and financing division, which is managed through its financial services division. Although it only comprises of a small part of the total revenue stream, these services have been steadily growing in relevance in the past years.

In 2021, a year after the IPO, Porsche generated EUR 33.1 billion in revenue and delivered 301,915 vehicles, resulting in an operating profit of EUR 5.3 billion, a EUR 1.1 billion increase from the previous year. These numbers represent a 27.0% rise from 2020 and an operating return on sales of 16.0%, marking a 1.4% increase when compared to the previous year, which had been impacted heavily by the pandemic.

With these results, Porsche has managed to carve out a sweet spot between niche luxury and premium automobile manufacturers as well as standing out within the Volkswagen Group, whose other brands have struggled to reach even half of Porsche's profitability. This is particularly noteworthy because despite Porsche's large investments in digitalization and electrification, the company achieved a substantial increase in net cash flow.

When analyzing the geographical distribution, Porsche's sales were spread across several key markets, with 32.0% of sales generated in China, 29.0% in Europe, 26.0% in North America and the remaining 13.0% in other regions of the globe (Porsche AG, 2022).

The success of the Taycan model, which was able to attract 60.0% new customers, with 41,296 deliveries after product launch in 2021 underscores Porsche's strategic focus on electrification and its success. Currently 25.0% of Porsche's global deliveries are BEVs, number the company aims to increase to 80.0% by 2030. This jump in numbers will be driven not only by the release of new BEV models, but also the upgrading and electrification of existing models, starting with the 718 series and the Macan model.

A key factor of Porsche's strategy going forward is to solidify its position as a luxury brand by focusing on delivering a unique customer experience. This will be achieved through a combination of innovative technology, high-end design and personalized customization options, all of which are integral to Porsche's vision of providing a distinctive and premium experience to its customers (Porsche AG, 2022).

Comparable companies

Selecting a truly comparable set of companies, often referred to as "peers", is not only a complex endeavor, but also essential for accurately estimating the cost of capital in discounted cashflow valuations as well as performing coherent relative valuations based on multiples. In order to define this peer group, companies should share some key characteristics. In this case, we would look for companies that are publicly traded, that operate in the same industry, share similar risk profiles, have a close growth potential and similar expected future cash flows (Rappaport, 1981; Damodaran, Valuation Approaches and Metrics: A Survey of the Theory and Evidence, 2005; Berk & DeMarzo, 2016). A good starting point for identifying such a group of companies is to analyze the competition mentioned in the company's own reports (Koller, Goedhart, & Wessels, 2005)

Porsche, with an average revenue per car of EUR 109,759 and 301,915 deliveries per year, occupies a unique and rather odd position in the market. It competes in the niche luxury segment alongside brands like Ferrari, Aston Martin, Bentley, Lamborghini, McLaren, Bugatti, Rolls-Royce and Maserati. But it also as competitors in the premium automotive segment, facing rivals such as BMW, Audi, Mercedes-Benz, Tesla, Volvo Cars and Lexus (Porsche AG, 2022).

Although Porsche is a car manufacturer, it progressively positions itself as a luxury brand, capitalizing on its reputation and heritage to cement a place in the high-net-worth individuals' market. This subtle shift in ideology aligns with the evolving luxury landscape, which was one of the driving factors of the IPO in the first place. Porsche now considers itself as part of the luxury segment, alongside brands like LVMH, Chanel, Richemont, Dior, Kering, Hermès and Rolex. This vision is spearheaded by Porsche's CEO Oliver Blume, which stated "*Porsche is a global iconic brand. We are 100% sports car and 100% luxury.*" (Porsche AG, 2022).

A counterpoint to Porsche's luxury status can be made, as the company sells to many vehicles to maintain the scarcity and exclusivity necessary for a luxury brand (Storbeck & Campbell, 2022). Additionally, a brand's luxury status often hinges in the price of its entry-level models, with the key question being "*How much does it cost to access the brand?*" (Campbell & Miller, 2022). With the introduction of more affordable SUVs like the Macan, and selling over 300,000 vehicles in

2021 alone, one could argue that Porsche does not possess the same uniqueness as other pure luxury automakers, but more closely resembles a more typical, yet high-end, premium manufacturer. Nonetheless, its top model, the 911, sold only 38,464 units in 2021 and its average revenue per vehicle exceeded EUR 100,000, creating a clear distinction between Porsche and other premium brands. Porsche refers to this blend of luxury and scale as “*luxury with scale benefits*” (Porsche AG, 2022).

This unique position and branding makes it challenging to find a direct automotive peer with similar brand strength and long-term strategy. Ferrari, with its tried luxury paradigm and racing history seems the closest fit, if not without its reservations. Key differences would account for Ferrari’s strategy of controlled growth through price increases and deliberate limited supply. Adding to this, with extremely high margins on each vehicle and a position in an even more exclusive market niche makes the comparison less feasible.

“Ferrari will always deliver one car less than the market demands.” – Enzo Ferrari

Other luxury automotive brands that could share the same philosophy as Porsche have their own problems when used as a comparable company. Bentley, Lamborghini, Bugatti Rolls-Royce and Maserati are all part of larger conglomerates. As for Aston Martin, the company has been facing several years of profitability uncertainty and in McLaren’s case, the company is still a private company.

Due to Porsche’s distinctive profile, higher sales per annum and lack of direct comparable peers, the range of companies able to be considered as comparables need to be extended to include premium automotive brands as well as luxury brands. Companies like Polestar, Jaguar Land Rover, Brunello Cucinelli, Prada, Lindt & Sprüngli, EssilorLuxottica, The Burberry Group, TOD’s, Hugo Boss, Salvatore Ferragamo and Moncler can be poised as luxury brands with similar ideas as Porsche. Looking a step further, volume manufacturers like Ford, Honda, Renault, Hyundai, Škoda, Volkswagen SEAT, Fiat Chrysler and Stellantis can be considered for some of their shared characteristics with Porsche.

To reach the final peer group, the initial list is analyzed based on both operational and financial characteristics. Alongside these characteristics, comparable companies should also share similarities in the other four fields of comparison, such as industry focus, risk profile, growth potential and future expected cash flows (Palepu & Healey, 2012).

Using Eichner (2022), the companies chosen to form the peer group are analyzed according to several operational criteria such as business model, lifecycle phase, products and consumer segments. As a result of this analysis, companies that are lacking key similarities with Porsche are excluded from consideration, which include all volume automotive companies, the premium automotive company Polestar, as well as several luxury companies such as Lindt & Sprüngli and EssilorLuxottica.

The remaining companies are then assessed based on financial criteria which includes size, correlation of revenue growth, profitability, return on capital, leverage, cash conversion and working capital. The analysis of these factors led to the removal of an additional 19 automotive

and luxury companies. Ultimately, the final peer group consists of eleven companies spanning the luxury, premium automotive and luxury goods sector.

Although a steep reduction of companies from the initial pool, with a size of eleven companies, Porsche’s peer group falls within the typical range of eight to fifteen companies commonly used for valuations (Koller, Goedhart, & Wessels, 2005). Looking at the chosen group, Volvo can seem like an unconventional inclusion, whoever it shares similar challenges with Porsche, especially regarding the transition to electric mobility and navigating macroeconomic conditions, warranting a spot in the final peer list.

Peer Companies	
Automotive	BMW AG
	Ferrari N.V.
	Mercedes-Benz Group
	Volvo Cars
Luxury	Burberry Group plc
	Christian Dior SE
	Compagnie Financière Richemont SA
	Hermès International SCA
	Hugo Boss AG
	Kering SA
	LVMH SE

Table 1. Porsche’s automotive and luxury peers (author)

Choosing a Risk-Free Interest Rate

The risk-free interest rate represents the return an investor can expect with some certainty, or in other words, that the actual return on the investment will be equal to the expected return (Damodaran, 2020).

Among all financial instruments, only government issue securities come close to being free from default risk, although even these may carry minimal risk. Given that the German government has never defaulted on its debt and consistently holds the highest possible credit ratings, AAA from S&P, Ass from Moody’s and AAA from Fitch, German government bonds are widely regarded as the best proxy for a risk-free rate for EUR denominated securities (Federal Republic of Germany Finance Agency, 2022).

Damodaran advocates for a duration matching approach when choosing an appropriate risk-free government bond, ensuring that the bond’s duration aligns with the project’s time horizon. With this method in mind, and the timing of the Porsche IPO, a risk-free rate of 2.33% is chosen. This

rate reflects the yield of the 10-year German government bond as of the end of October 2022 (Bloomberg, 2024).

Financial Statements & Balance Sheet Forecast

Forecasting is a tool used by financial analysts to convey a forward-looking perspective on a company's potential path, helping the decision makers to better choose which direction to take. Effective forecasting requires a thorough analysis of a company's financial, both financial statements and balance sheet to produce an accurate valuation. A critical part of this endeavor is selecting the company's key value drivers (Pignataro, 2013).

In Porsche's case, the primary driver is revenue, which in this case is largely generated through vehicle sales, with key factors being not only the number of vehicles delivered each year, but also the pricing trends per vehicle.

An analysis of Porsche's historical vehicle deliveries and pricing trends indicates a steady growth trajectory across all models. This increase mirrors the broader luxury market's expansion and the increasing significance of high-net-worth individuals in this sector. The successful launch of the electric Taycan model further strengthens Porsche's market position, enabling an anticipated revenue growth of 8.0% for 2023. This rate is projected to decrease by 1.0% each subsequent year until it aligns with the European Central Bank's inflation target of 2.0% (see table 3).

In addition to its automotive business, Porsche also derives revenue from its financial and leasing division. This specialized segment has historically contributed approximately 2.94% of the company's total revenue, and as such, it is expected to follow the previously mentioned growth projections.

Another important consideration to have is the cost of sales, which includes production material costs, personnel expenses, non-staff overheads, R&D expenses and depreciations and amortizations. It is of note that the supply-chain constraints and increased price in raw materials caused by the COVID-19 pandemic raised this costs considerably for the entire sector. However, these rising costs were partially mitigated by Porsche's close ties to the Volkswagen Group, taking advantage of their relationships with key suppliers.

Having this in mind, Porsche launched the "Profitability Program 2025", aimed at reducing costs through initiatives that included streamlining driving variants, increasing the number of shared parts between models, reducing physical prototypes and enhancing their digital capabilities (Porsche AG, 2022).

Looking deeper at Porsche's income statement, the firm classifies selling, general and administrative expenses (SG&A) into distribution and administrative expenses. Distribution expenses primarily encompass non-staff overheads, personnel costs, costs associated with shipping, advertising, sales promotion and depreciations and amortizations. As for administrative expenses, these include personnel costs as well as depreciations and amortizations within the administrative division.

By consolidating the proposed cost-reduction initiatives alongside current geopolitical pressures that are impacting supply chains and raw material costs, as well as the cost of the push towards electrification, it is projected that the costs will grow in alignment with the revenue over time.

Cost of Capital

To arrive at the cost of capital, the method of choice was the Weighted Average Cost of Capital (WACC), so we could later compute Porsche's valuation via the Discounted Cash Flow (DCF). The Capital Asset Pricing Model (CAPM) is also needed to correctly arrive at the cost of capital. While some of the CAPM's theoretical assumptions don't fully hold in real-world scenarios, its simplicity and robustness stood the test of time, as it is still a widely preferred approach among financial experts.

To estimate Porsche's value, we used the comparable companies chosen before that would emulate the best Porsche's path. The beta values for these peer companies were sourced from Bloomberg for the year 2021 (table 2.0 in the appendix), as the IPO happened a year later. Given that the peer group includes several companies that have different sizes and different capital structures, each company was weighted accordingly. This approach resulted in an unlevered beta of 1.14, and applying the same logic, we determined that the beta of the debt of these companies is 0.18. With the assumptions outlined above, these calculations arrive at a cost of debt for Porsche of 2.17%.

As the WACC was the chosen method of valuation, we need to determine the net debt to enterprise value ratio. To that end to be consistent with the historical debt profile of the company, a debt value of 12.0% was chosen. As all figures are euro denominated and Porsche headquarters is in Germany, we applied Germany's corporate income tax of 30.0%.

Another critical component in the WACC calculation is the market risk premium (MRP). While many consulting and financial firms traditionally apply values between 5.0% and 6.0% based on historical averages of matured markets such as the United States of America market, in this case, the MRP selected was KPMG's estimate for Germany's market for 2022, which was set at 6.1%. This slightly elevated premium reflects the intense inflationary pressures felt during that period, which suggests that, in a less inflationary environment, a lower ERP could be appropriate for valuation purposes.

Based on these inputs, Porsche's AG cost of equity is calculated at 9.96%, while the WACC including tax shields as a value of 8.95%.

DCF Valuation

To compute the DCF valuation and to ultimately derive a price per share for the company, all of the free cash flow needs to be taken into account, meaning it's allocated to all investors of the firm, being those equity holders or debt holders. This amount is then discounted at the WACC. The benefit of this approach is that it circumvents the estimation uncertainties associated with financing decisions and their impact on net earnings (Berk & DeMarzo, 2016).

For the long-term growth rate input, a value of 2.0% was selected, aligning with the European Central Bank's targeted inflation rate for a stable economy. Notably, at the end of 2022, the inflation rate stood at 6.1%, reflecting lingering effects of the pandemic and geopolitical tensions that continued to influence the cost of living and raw materials. That rate wasn't chosen as inflation was expected to slow down due to aggressive measures by the central banks.

Discounting Porsche's free cash flow at a WACC of 8.95% and adjusting for a net debt of EUR 5.76 billion results in an equity value of EUR 89,206 billion. Given Porsche's issuance of 911 million shares, this values each share at EUR 97.92 (Koller, Goedhart, & Wessels, 2005). (see table 7).

Although there are several valuation models, like the adjusted present value (APV), the flow to equity (FTE) and the economic value added (EVA), the DCF valuation is widely regarded as the most reliable valuation method as it takes into account the projections of future cash flows. That being said, this method is sensitive to assumptions that impact cash flow estimates and the cost of capital (Pignataro, 2013). This effect can be seen in table 8 of the appendix.

Comparable companies' analysis

While the DCF method estimates a company's intrinsic value by projecting its capacity to generate future cash flows, a relative valuation approach assesses a firm's value by referencing the markets valuations of key comparable companies (Damodaran, 2005). This relative valuation approach is rooted in the "law of one price", which suggests that, in mature and competitive markets, similar assets should be priced equivalently (Esty, 2000). Following this principle, using valuation multiples from publicly traded peers is effective in valuing private firms, as companies within the same sector and with similar performance metrics should theoretically yield comparable multiples (Koller, Goedhart, & Wessels, 2005).

However, a significant limitation of this approach is the challenge of finding perfectly comparable companies. Since no two firms are exactly alike, this analysis may overlook critical company-specific attributes, potentially leading to inaccurate conclusions (Koller, Goedhart, & Wessels, 2005; Berk & DeMarzo, 2016). For Porsche, this challenge is pronounced, as some would suggest that it holds a unique position between the premium market and the luxury one. Moreover, reliance on industry peers introduces the risk of overvaluation or undervaluation if the broader sector itself is facing any mispricing. In this case, the DCF approach, which incorporates company-specific information, can often deliver a more precise and customized valuation, particularly when significant differences between peers firms could otherwise lead to imprecise conclusions. (Berk & DeMarzo, 2016)

But, after surpassing that hurdle and identifying suitable comparable companies, the next step is selecting and calculating the relevant valuation multiples (Damodaran, 2005). Valuation multiples are generally computed as the ratio between a company's market value and a scale measure, such as earnings or revenue (Berk & DeMarzo, 2016). Although multiples can be based on historical, current or forecasted values, both scholars and financial firms prefer the use of forecasted values,

as these are more forward-looking and provide a more accurate measure of the firm's value (Liu, Nissim, & Thomas, 2002; Koller, Goedhart, & Wessels, 2005).

In this analysis, the price-to-earnings (P/E) was selected, as it is one of the most commonly used metrics in relative valuation (Berk & DeMarzo, 2016). Despite its popularity, the P/E can be sensitive to differences in accounting policies and capital structures, potentially leading to distortions by blending anticipated results with the capital structure (Damodaran, 2005; Koller, Goedhart, & Wessels, 2005). Despite this risk, since the analysis of both automotive and luxury peers showed similar capital structures and consistent earnings, the risk of distortion is low, supporting the use of equity multiples.

Additionally, the enterprise value multiple (EV/EBITDA) was calculated, which offers an advantage by excluding capital structure effects, which allows for better comparability across companies with different leverage levels.

One key advantage of using multiples to compare companies is the speed and responsiveness it has to the market's current assessments of similar companies. Adding to that, because it depends on the market's evaluation of comparable firms, this approach sidesteps the need to estimate key inputs such as cost of capital or future free cash flows. This makes it a useful supplementary tool to the DCF, proving a means of cross-verifying valuation results (Koller, Goedhart, & Wessels, 2005).

As seen in table 7, when analyzing the multiples in comparison with the other companies, it stands out how much different it is from Ferrari, which can be interpreted as a nod to Porsche not being a pure luxury brand yet. The more similar multiples would be the BMW and the Mercedes-Benz. This also can serve as an example that while multiples can paint abroad picture of the chosen market, it does not tell the entire story.

Conclusion

This project set out to assess whether Porsche was undervalued or overvalued at the time of its IPO by determining its intrinsic value. Understanding this value required a deep dive into Porsche's complex relationship with Volkswagen, as well as its place within the broader market.

An in-depth analysis reveals that Porsche's segment in the market is somewhat ambiguous. While it's production volume and a lower cost entry-level models align with premium car makers, certain attributes, such as its focus on the client and the fact that even at a lower price, a Porsche is still unattainable for a large part of the population, could make a case for a inclusion in the luxury segment.

After understanding the surrounding market, the DCF model using the WACC was selected to compute the valuation, as it can move around some of the uncertainties tied to financing as explained earlier. This method calculated Porsche AG's implied share price at EUR 97.92 per share. As the IPO was set at EUR 82.50, it indicates a discount of 15.74%.

Although every valuation is bound by the assumptions made, there are multiple factors that can influence and explain the discount. First, the timing of the IPO can be a factor, as the world was

still struggling to recover from the effects of the COVID-19 pandemic. This event was especially hard on the automotive industry, not only because of supply constraints and rise in prices for raw materials, but also because of the mental shift that happened in most cities around the world. Homeworking became a normal situation and people started using their cars less. These market conditions, accompanied by a severe cost of living crisis, could had a presence in the valuations decisions at the time.

Another critical reason that could have deterred some investors is the governance problems entwined between Volkswagen and Porsche. Given that only non-voting shares were made available for the IPO and the chairman and other key members of the board of Porsche where also from the board of Volkswagen, it reinforced the impression that Porsche would still be controlled by Volkswagen. Lastly, the uncertainty about the future of mobility, including debates over electric versus hybrid technologies, may have further tempered market optimism. Even with Porsche at the forefront of the electric revolution, it may be too soon to tell if that will be the correct way forward.

Despite these challenges, Porsche demonstrates a strong financial track record and careful laid out plans for the future. Adding to that, the opportunity of owning a small piece of an historic race car manufacturer like Porsche is for most a dream come true. Investing sometimes is not only about money.

Porsche AG stock price all time high: EUR 118.00 – 20th February 2023

Porsche AG stock price on 31st of October 2024: EUR 64.64

References

- Astroman. (2012, July 4). Volkswagen and Porsche create integrated automotive group. *Astroman Magazin*.
- Bain & Company. (2021). *From Surging Recovery to Elegant Advance: The Evolving Future of Luxury*. Boston: Bain & Company.
- Berenberg. (2022). *Volkswagen AG - Automotive OEMs - Final Lap in the Porsche Grand Prix*. Hamburg: Berenberg.
- Berk, J. B., & DeMarzo, P. M. (2016). *Corporate Finance*. Harlow: Pearson Education Limited .
- Bloomberg. (2024, September 10). German Rates & Bonds.
- Bodnaruk, A., Kandel, E., Massa, M., & Simonov, A. (2008). Shareholder Diversification and the Decision to Go Public. *The Review of Financial Studies* 21.
- Brau, J. C., & Fawcett, S. E. (2006). Initial Public Offerings: An Analysis of Theory and Practice. *The Journal of Finance* 61, pp. 399-436.
- Campbell, P., & Miller, J. (2022, September 14). Porsche IPO: The Race to Catch Ferrari. *Financial Times*.
- Chammanur, T. J. (1993). The Pricing of Initial Public Offerings: A Dynamic Model with Information Production. *Journal of Finance*.
- Chemmanur, T. J., & Fulghieri, P. (1999). A Theory of the Going-Public Decision. *The Review of Financial Studies* 12, pp. 249-279.
- Corwin, S. A., & Schultz, P. (2005). The Role of IPO Underwriting Syndicates: Pricing, Information Production and Underwriter Competition. *The Journal of Finance*, 443-486.
- Damodaran, A. (2005). Valuation Approaches and Metrics: A Survey of the Theory and Evidence. *Foundations and Trends in Finance* 1, 693-784.
- Damodaran, A. (2020). What is the Riskfree Rate? A Search for the Basic Building Blocks. *Journal of New Finance* 1.
- Deloitte. (2022). *Global Powers of Luxury Goods*. London: Deloitte Global.
- Eichner, K. (2022). *M&A / Valuation / Academy: How to Review M&A Valuations*. Retrieved from LinkedIn.
- Ernst & Young. (2021). *EY Guide to Going Public*. Nassau: Ernst & Young Global Limited.
- Esty, B. C. (2000). What Determines Comparability When Valuating Firms with Multiples? . *Financial Education Association* 26 (Fall), 24-33.
- Federal Republic of Germany Finance Agency. (2022). *Federal Securities*. Berlin: Federal Republic of Germany Finance Agency.

- Hale, Galina, & Santos, J. A. (2009). Do Banks Price Their Informational Monopoly? *Journal of Financial Economics* , pp. 185-206.
- Hsieh, J., Lyandres, E., & Zhdanov, A. (2011). A Theory of Merger-Driven IPOs. *Journal of Financial and Quantitative Analysis* 46, pp. 1367-1405.
- Ibbotson, R. G. (1975). Price Performance of Common Stock New Issues. *Journal of Financial Economics*, 235-72.
- Ko, E., Costello, J. P., & Taylor, C. R. (2017). What is a luxury brand? A new definition and review of the literature. *Journal of Business Research*.
- Koller, T., Goedhart, M. H., & Wessels, D. (2005). *Valuation: Measuring and Managing the Value of Companies*. Hoboken: John Wiley & Sons.
- Leite, T. (2000). Overpricing in IPOs: When Issuers Leave Money on the Table.
- Liu, L., Nissim, D., & Thomas, J. (2002). Equity Value Using Multiples. *Journal of Accounting Research* 40, 135-172.
- Ljungqvist, A. (2007). *IPO Pricing*. Amsterdam: North-Holland: B Espen Eckbo.
- Logue, D. E. (1973). On the Pricing of Unseasoned Equity Issues. *The Journal of Financial and Quantitative Analysis* 8, 91-103.
- McKinsey & Company. (2022). *Five Trends Shaping Tomorrow's Luxury-Car Market*. New York : McKinsey & Company.
- Mortelmans, D. (2005). Sign values in processes of distinction: The concept of luxury. *Journal for Consumer Culture*.
- Palepu, K. G., & Healey, P. M. (2012). *Business Analysis & Valuation Using Financial Statements*. Mason: South-Western: Cengage Learning.
- Pignataro, P. (2013). *Financial Modeling and Valuation: A Practical Guide to Investment Banking and Private Equity*. Hoboken: John Wiley & Sons.
- Porsche AG. (2021). *Porsche Annual Report* . Stuttgart: Porsche AG.
- Porsche AG. (2022). *Porsche Achieves Sustainable Growth in 2020 Financial Year*. Stuttgart: Porsche AG.
- Porsche AG;. (2020). *Porsche Annual Report*. Stuttgart: Porsche.
- Porsche Holding SE. (2021). *Geschäftsbericht*. Stuttgart: Porsche .
- Rappaport, A. (1981). Selecting Strategies That Create Shareholder Value. *Harvard Business Review* 59, 139-149.
- Raymunt, M. (2022, March 29). *Porsche Backers Support IPO, See VW as Core Investment*. Retrieved from Bloomberg: <https://www.bloomberg.com/news/articles/2022-03-29/porsche-se-sees-vw-as-core-investment-after-sports-car-maker-ipo>

- Raymunt, M., & Rauwald, C. (2022, September 7). *Porsche Family Seeks Redemption with IPO After Tearful Defeat*. Retrieved from Bloomberg:
<https://www.bloomberg.com/news/articles/2022-09-07/porsche-family-seeks-redemption-with-ipo-after-tearful-defeat>
- Ritter, J. R., & Welch, I. (2002). A Review of IPO Activity, Pricing and Allocations. *The Journal of Finance* 57, 1795-1828.
- Ritter, J. R., & Welch, I. (2002). A Review of IPO Activity, Pricing, and Allocations. *The Journal of Finance* 57, pp. 1795-1828.
- Storbeck, O., & Campbell, P. (2022, September 27). Porsche Braves Grim Market but Luxury Valuation May Prove Elusive. *Financial Times* .
- Volkswagen AG. (2022). *Annual Report 2021*. Wolfsburg: Volkswagen AG.
- Wyatt, A. (2013). Is There Useful Information in the "Use of Proceeds" Disclosures in IPO Prospectuses?. *Accounting & Finance* 54, pp. 625-667.