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

The road to a new digital retail world – E-commerce in Carrefour SA's digital strategy

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A Project carried out on the Master in (Economics/Finance/Management) Program, under the supervision of:

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Abstract

This report, part of the annexed joint report, aims to analyze the overall outlook on the company, with its geographical distribution and industry trends, and in particular focuses on e-commerce. It then analyzes costs and other main financials involved in the development of the valuation model, as well as providing a sensitivity and risk analysis.

Keyword

Carrefour, Retail, E-commerce, Digital transition

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This report is part of the Carrefour Group report (annexed), developed by Tommaso Sposito and Tommaso Palma Camozzi and should be read has an integral part of it.

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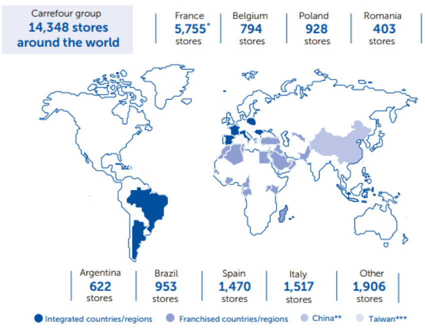
Introduction

Our joint report aims at setting an estimate to the share price of equity for Carrefour SA, with the use of a DCF model and a thorough analysis of the company in its geographical areas, as well as its components and the value drivers it has. The overall recommendation that derives from the report is a BUY, with a target price of EUR 20.09. The report begins with an overview of the company, its geographical market and competition within those markets. It then moves on to analyze the retail industry and its trends, in particular e-commerce and digitalization within an omnichannel ecosystem. Lastly, an analysis of financials is conducted, as well as a sensitivity analysis and a risk analysis. The individual section completed by Tommaso Sposito covers the company overview, with a focus on distribution channels and geographical markets. It then covers trends and value creation through the e-commerce segment. Then, a focus on costs, financials, and risk analyses are explained.

Figure 1. Geographical presence



Source: Company report

Company Overview

Carrefour SA is a French multinational group is a leader in global retail. It offers customers items adapted to their needs across the various countries and territories it operates in. Carrefour's business includes both food and non-food products, and the group also provides financial services.

With 321'000 employees, it operates in over 40 countries through 14'225 stores, and the activity can be divided into three large markets: Europe, Asia and South America. Carrefour's global total revenues were €83.1 bn in 2022, which mostly came from France (€37.71 bn). Like for Like growth[1] of the group was 8.5% from 2021 to 2022, driven by both inflation and volumes. In France alone the Group gained 470k new customers in 2022, which marked an important step-up in the market share in the country.

Carrefour was founded in 1959 and opened the first supermarket one year later; it was based on the self-service technique, first of all in a sales area of 200 square meters and then in an 850 square meters area. In 1963 they opened the first hypermarket, which included 400 free parking spaces. As a first mover in the retail sector, it was listed on the Paris stock market in 1970. In 1993 the company opened their first stores in Italy, and two years later they expanded operations to China.

In 1999 Carrefour became the world's second largest retail business with 240'000 employees and 9'000 stores, after the acquisition of Promodes through a public exchange offer.

Figure 2. Brand diversification

Source: Company report

Carrefour provides financial services in addition to non-food and food products. Relative to the latter, in order to ensure the freshness and quality of the food items, CA prefers a short supply chain. For example, 92% of the fruit and vegetables consumed in France today are produced by French farmers. The company also takes pride in satisfying the basic needs and preferences of the client, through a variety of sub-brands and private label offerings according to different consumption needs and possibilities, through different price ranges (Carrefour Bio, Carrefour Baby, Carrefour no gluten, Carrefour Vegetarian, etc.).

[1] Like-for-Like growth measures growth in sales in different time periods taking into account the same conditions.

Beside the core business, Carrefour also provides other services which include local services ranging from package collection to key cutting, as well as vehicle hire, pharmacies, health and beauty products and fuel delivery. Other services also offered by Carrefour include financial and insurance services, travel agencies, and event ticketing counters. All of these services are readily available in-store, such as near the front desk, online, or through a mobile app.

In general, Carrefour financial services consists in offering customers some credit and savings products (financing, saving and insurance solutions). As of today, this segment of Carrefour's operations counts 2.2 million customers today.

Distribution Channels

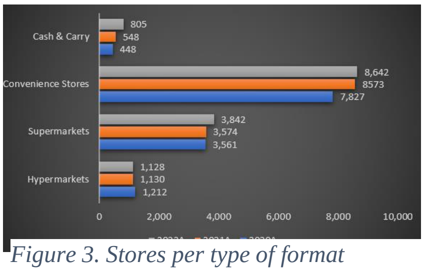


Figure 3. Stores per type of format

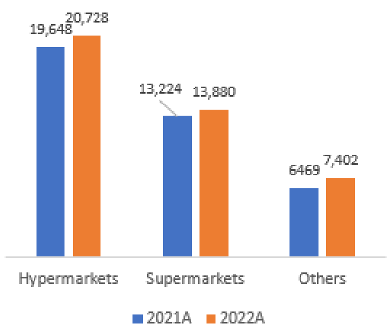
Source: Own analysis and Company reports

Carrefour Group is creating an omnichannel ecosystem by merging its physical stores with its online. E-commerce has increased a lot in the last few years, with 1.3 million visitors per day and 1.2bn sales in 2018.

There are four types of physical stores: convenience stores, supermarkets, hypermarkets, and cash & carry stores.

The **convenience stores** have a sales area ranging from 60 to 900 square meters and they represent the day to day living offer. They include several formats, in particular Proxi, Carrefour Bio, Carrefour Contact, Carrefour Express and Carrefour City. The main features are that they are located close to their customers with an offering that is adapted for the location, with attractive pricing and long store opening hours. There are more than 8'500 Carrefour convenience stores across the world and around 4'000 in France,

Figure 4. Sales per format in France (€ million)



Source: Own analysis and Company reports

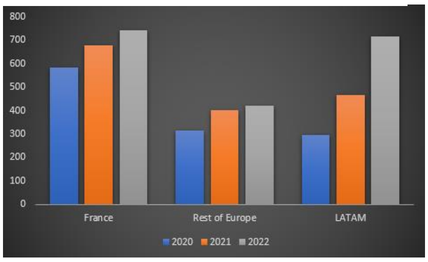
The **supermarket format** is present in cities and rural areas; the sales area is between 1000 and 3500 square meters. The main feature is to sell either a wide range of fresh and local products or non-food products adapted to the local customer base. There are more than 3'800 supermarkets worldwide.

The Carrefour **hypermarket** has a mix of 20'000 to 70'000 products in a sales area ranging from 2400 to 23'000 square meters. Here it is possible to get fresh products prepared every day by artisans, as well as practical services such as banking and insurance. Typically, hypermarkets are located outside the main urban areas, and are accompanied by big parking lots. There are slightly over 1'100 hypermarkets worldwide, of which 250 in France.

There is also another format, the **Cash and Carry**, that is expanding especially in Brazil. It offers retailers, caterers and professionals a vast range of food and non-food products presented on pallets, by unit or in multi-packs at wholesale prices.

Finally, Carrefour has been developing its e-commerce channels, which have been able to deliver a €4.2 bn GMV in 2022, a threefold value if compared to 2018. This has gone hand in hand with a 11pts increase in profitability in the last two years, and a total of 8bn transactions in the company's data basin. As of 2022, around 4,000 stores worldwide have been enabled to e-commerce functionality, and 45 fulfilment centers have been set around them.

Figure 5. Operational investment by region (€ million)



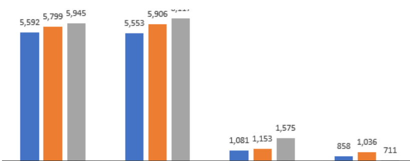
Source: Own analysis and Company reports

Geographical Markets

Carrefour operates in three large markets: France, Europe, and Latin America, where it is present in Brazil and Argentina. Until 2023 it was present also in China and Taiwan, but all operations ceased with the recent sale of the Asian branch in 2022.

France represents the company's domestic market and is the most important business area in terms of revenues, as of 2022, it accounts for 40% of the total revenues. There are three macro distribution channels in France: hypermarkets (50% of sales), supermarkets (33% of sales) and convenience (around 17% of sales). In France Carrefour has a market share of 21%, similar to Leclerc, its main competitor (22% of market share). In the last years they have gained market shares because of Casino's operational problems (another retailer in France, that accounts today for 7.5% of market share). It is relevant to focus on this business because Carrefour is facing some problems keeping the EBIT margin high and steady. In particular, there are some problems in France because of the presence of strong labor unions, which don't allow the company to reduce employee costs in order to increase the EBIT margin. The strategy here is to make some franchisee deals with some privates to bypass unions and cut costs.

Source: Own analysis and Company reports



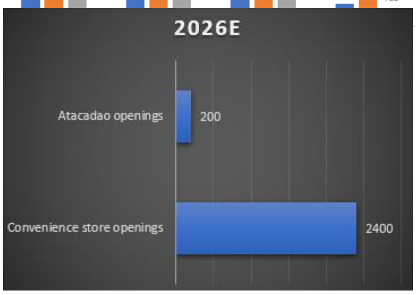


Figure 7. Brazil store openings per company goals

When it comes to distribution channels, Carrefour has foreseen to invest €3 bn in CAPEX as a group in its digital expansion until 2026, increasing the yearly average to €600 million per year, and it seeks to become market leader in France with a market share greater than 20%. Considering France also homes the most hypermarkets, which have historically been underperforming in the last decade, Carrefour has decided to adopt the Maxi Method. Said method consists in a simplified and adapted food offer, assorted through new data driven technologies and developing globally available products. For the non-food offer, massification and legibility will be applied to make these products more desirable to customers. Specifically, own-brand products and private label products will reach 50% of total product share, which help both consumers with better price offerings, and Carrefour with margin improvements up to 40%[2].

Carrefour mainly operates in **five other countries in Europe**, namely Spain, Italy, Belgium, Poland and Romania. The most relevant country in terms of revenues is Spain, followed by Italy and Belgium. Poland is the business which is growing faster because it is an emerging market. The country performing worse in the area has been in Belgium, mainly due to very strong competition with the main adversary Colruyt, which sets the prices for the market and has unleashed a price war. In terms of EBIT margin, the European area ranks in between LATAM and France, and is an area in which the company still seeks to expand, with operational investments growing by €100 million since 2020 (figure 5). Carrefour currently has more than 6,000 stores under its banners in these countries, with a growing trend in convenience stores, which have increased from 3,100 in 2020 to nearly 3,500 in 2022.

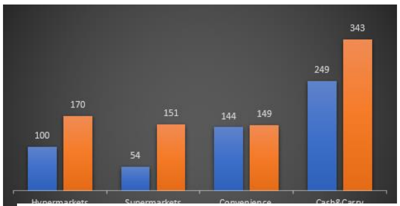
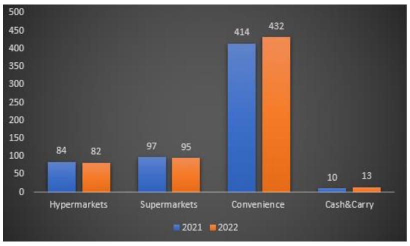


Figure 8. Store evolution per format Brazil

Source: Own analysis and Company reports

The business area that is growing faster is **Latin America**. In 2022, it represents 36% of total revenues, but in terms of EBIT margin it is better than France because the company is able to handle cost lines better. To expand its Brazil operations, in 2021 Carrefour has completed the acquisition of Groupo Big, which was finalized in 2022. Groupo Big was the third largest food retailer in Brazil, it accounted three billion of net sales with 388 stores. Such operation allowed to use openings and acquired stores to contribute to higher volumes and an overall 44.9% increase in net sales in 2022. Moreover, it will be crucial to acquire market penetration in regions where the company hadn't been able to do so previously, such as the South and North-East. As can be seen in figure 7, the total number of stores in Brazil has critically increased in the last year, and part of the Group strategy is to keep investing in Latin America because of the better margins and profitability.

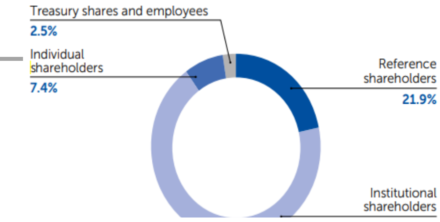
Figure 9. Store evolution per format Argentina



Source: Own analysis and Company reports

The Asian region has been one of the longstanding areas of operations for Carrefour, with the first stores opening in the late 80s in China, and a further

[2] Private Label For Profitability: Six Things To Consider - Retail TouchPoints



Source: Own analysis

Figure 10. Shareholder structure overview

expansion later on in Taiwan. As of July 2022 though, Carrefour has signed an agreement to sell its stake in Carrefour Taiwan to Uni-President group for an EV of around €2 billion, which should become effective in mid-2023. The company will continue to be part of licensees for the next 40 years, according to sale agreements.

Shareholder Structure

Carrefour is a French public limited company, listed at the Euronext Paris stock market and is part of the CAC 40 index, that includes the 40 most capitalized companies in France. The share capital is divided into 732’157’461 million shares and the main shareholders are two families, Moulin (with around 10% of total shares) and Diniz family (with 7.9% of the total shares). The free float represents around 70% of total shares.

A few years ago, Auchan, a retail competitor of Carrefour, tried to acquire Carrefour. The potential deal was supposed to create a retailer with sales of 110 bn euros per year and a French market share of nearly 30%. Auchan had offered 21.5 euros per share (19.4 billion), but the Moulin Family opposed the deal because of valuation issues. As of today, it is possible that Auchan could come back with another offer in the next years.

The company is currently in the process of buying back shares and will be for the remainder of the year for an estimated total of €800 million worth of stock. This sums a trend that Carrefour already began in 2021 with a €700 million share buyback.

E-commerce within the digital ecosystem

The grocery retail industry has been characterized by small gross margins and inconsistent growth within its more saturated markets. This was mostly due to evaporated profitability driven by increase in overall costs and price pressure from competitors and other players such as discounters and online marketplaces, which are putting at risk up to $700 billion in revenues[3]. New technologies and more automation need to be launched so as to cut both retail prices and labor costs, as well as allow a consistent share of sales to shift towards e-commerce.

Unprofitability in the e-commerce sector

[3] Reviving grocery retail: six imperatives. https://www.mckinsey.com/industries/retail/our-insights/reviving-grocery-retail-six-imperatives

Historically, the e-commerce sector has been underperforming due to the following factors:

- Logistics behind the digital orders are far more complex than what they appear since retailers must be able to stock up more than in physical stores.
- The incapability to deliver to various locations while optimizing milage and timeframe requirements by customers, while making sure the correct items are always selected and delivered in optimal conditions[4].
- $10 per $100 spent net P&L differences between an average physical basket, and an online basket in the US in 2022
- Impossibility to adopt the traditional e-commerce tax surplus on prices, with shifting trends in consumer willingness to pay premiums.

E-commerce channel - Carrefour

Behind the spotlight under which e-commerce now stands, several factors have made it possible for this channel and the demand for it to expand and be the main driver for retail grocery performance in future outlooks. In Carrefour's estimates, by 2026 the company will be able to triple its GMV from e-commerce from €3.3bn to €10bn, bolted by the digitalization of its financial services to encompass its customers in multiple aspects of their consumer habits[5]. Drivers for such perspectives lie behind several factors that have shaped a new scenario in the market.

Consumer trends

To understand why consumers have shifted to online grocery delivery as a preference in such a short time stretch, the 2020 pandemic has been a key factor. The following analysis summarises the principal trends shaping the digital channel for retailers and Carrefour in particular.

- The **channel mix** saw the online segment take up to 30% of all revenues during the lockdowns, and settle up to 9% after lockdowns were lifted, compared to 3% pre-pandemic.[6]
- Low consumer use of e-commerce led retailers to low investments, hence a worse experience on online platforms. Sharp rises in demand for

[4] https://www.forbes.com/sites/dennismitzner/2022/07/31/grocery-retailers-and-the-food-market-trends-and-future-prospects/

[5] Carrefour Universal Registration Document 2022
[6] The future of grocery retail: New ways for growth | McKinsey, 2022

digital channel availability have increased investments in e-commerce, like Carrefour's forecasted €600 million in yearly digital capex through 2026.[7]

- Different age ranges of the population getting involved with the digital channel, demand has also spread to less urbanized regions. Convenience is also a key characteristic influencing consumer choice, hence the need to evolve instant delivery.

Industry trends

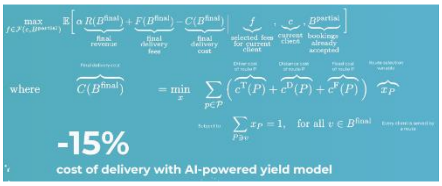
Within the industry, competition has been growing to satisfy the demand for online delivery. In fact, both online marketplaces such as Amazon and Walmart, as well as pure online players are offering parallel services to those made available by grocery retailers. The result is that major investments must be redirected towards the creation of a self-sustaining and effective logistical setup to be able to keep up with the competition. Carrefour has already forecasted its CAPEX to increase to €3bn up to 2026, in order to adapt its IT capacity, data management and e-commerce network through automation and robotization allowing profitability to increase with declining costs.

Source: Digital Day presentation - Carrefour

Technology

To begin with, the adoption of analytics and AI to better assort products both in the online offerings and in physical stores can be key to consistently better results, with an estimated 3-6% of additional sales.[8]

Figure 11. Cost of delivery yield model equation

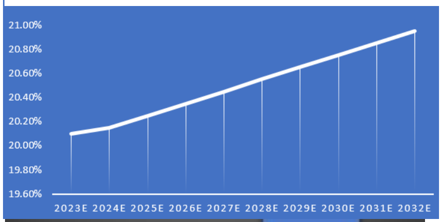


In particular, this function can allow specific stores to adapt to different geographical preferences, even at a regional and urban level, so as to offer the best product range for each case. Moreover, within the warehouses and fulfilment centers, which Carrefour is planning to expand in number, new technologies must be implemented to allow for increased automation which can consistently cut costs from picking in the chain of e-commerce deliveries.

Carrefour has also developed a complex equation for last mile costs, to optimize delivery expense and save up to 15% with its AI-powered yield model, as can be seen in figure 16. Such a technology, as well as an optimal organization of fulfilment centers between in-store, micro, and macro centers, some of which automated, will help increase margins overall in the e-commerce segment which is expected to generate an operating profit of €200 million in the years to come.

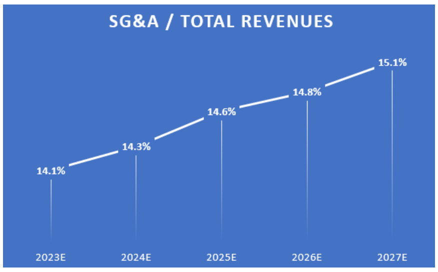
[7] Digital Day Presentation – Carrefour, 2022
[8] E-commerce is shifting how European grocers seek profitable growth | McKinsey, 2022

Figure 13. Gross margin evolution Carrefour



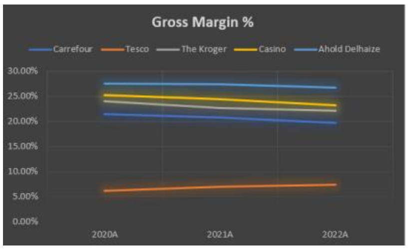
Source: Own analysis

Figure 14. SG&A margins evolution



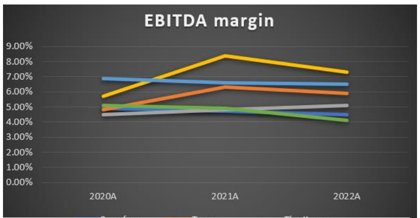
Source: Own analysis and company reports

Figure 15. Gross margin % grocery retail industry



Source: Own analysis

Figure 16. EBITDA margin grocery retail industry



Source: Own analysis

Source: Own analysis

Cost cuts and scalability

Alongside investments in new technologies, cost cuts are possible in different steps of the delivery process. The different picking options available to cut costs range from the use of workforce in stores as a hybrid between customers and online order fulfilment, to the introduction of new fulfilment centers.[9] Delivery costs represent a big problem as of today, but this can be resolved through partnerships with third parties, such as Uber Eats and Cajoo[10] for Carrefour, that avoid major fleet costs and extra labor dedicated to deliveries.

Fulfilment centers

A greater reliance on e-commerce entails the adaptation of the structure supporting the storage of products to fulfil the demand for shipped and delivered goods. In this sense, Carrefour has envisioned the opening of at least 70 new fulfilment centers, most of which will be dark stores. A dark store is a micro-center that is designed to fulfil digital orders and can help improve efficiency and cost-effectiveness of online orders, as it can support multiple stores from one location.[11]). These stores also hold a predisposition for automation, as there is no customer interaction, and they tend to be an easy way to cut labor costs.

Valuation

Costs

The grocery retail industry mainly relies on sales of food and non-food goods, hence the cost line referring to cost of goods sold is particularly high compared to other industries, with relatively small gross margins across the whole market. In particular, for Carrefour cost of goods sold corresponded to an average of 79.4% of total revenues in the last three years, which corresponds to one of the lowest values considering the industry and main competitors, with the exception of Tesco which however has a different structure.

As can be seen from Figure 34, the average gross margin of the industry settles at around 25% for the last three years, whereas Carrefour's value has been 20.6%, albeit with a positive trend. To this end, Carrefour has projected its costs to be reduced by €4 billion in the next four years. In order to achieve said better

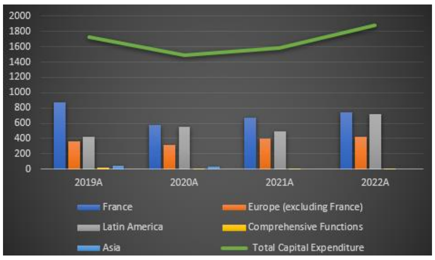
[9] The future of grocery retail: New ways for growth | McKinsey
[10] Uber, Carrefour expand partnership to speed up deliveries in Paris | Reuters
[11] Dark Stores: The Key To Online Grocery Efficiency And Profitability (forbes.com)

cost management, the Group has designed a new organizational scheme for its activities to pool specific activities in the various geographical areas of operation, so as to reduce head office costs. Moreover, the digital transition the company has envisioned for its future will allow for lower costs through an industrial approach to private labels and the mutualization of offer and purchasing across countries. Furthermore, Carrefour's acquisitions of Groupo BIG in Brazil which could help benefit from economies of scale and hence cost optimization. We have forecasted the gross margin to gradually increase from the 19.6% value of 2022 linearly to a value of 21% in 2032, as depicted in Figure 36.

With regards to operative costs such as repairs, and energy consumption costs, there has most recently been a significant increase in the latter, mainly due to the energy price spike in Europe following the conflict currently going on in Ukraine. In the future however, Carrefour foresees its energy supply to be renewable generated entirely for its e-commerce operations in 2030, as well as an overall consumption reduction of 20% in energy consumption by 2026 for the whole group. To further support such efforts, Carrefour has planned to implant 4.5 million square meters of photovoltaic surface to generate energy through its car parks.

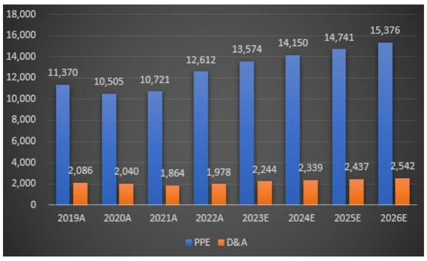
Other important costs Carrefour has within its SG&A, mainly employee benefits, advertising costs, and property rentals, they have been increasing in absolute terms in recent years in line with the expansion the company has been putting in act in recent years, but a big improvement was registered in the relative weight with respect to total revenues, and we foresee such expenses to remain between the current 14.4% and 15% in 2027 (Figure 38).

Figure 17. CAPEX evolution per region



Source: Own analysis and Company reports

Figure 18. PPE and D&A evolution

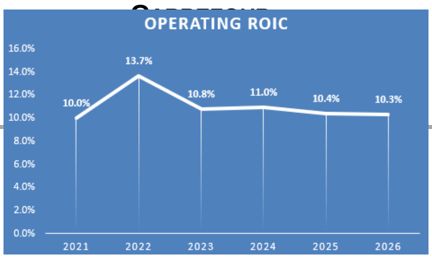


Source: Own analysis and Company reports

CAPEX

In the process of calculating the FCF, we analyzed the capital expenditure Carrefour has had in the past and the division between different areas. An interesting trend, confirmed by the expansion strategy and acquisitions Carrefour has most recently finalized, is the steep increase in Capex in the LATAM region, from 24% in 2019 to 38% of total in 2022. This trend, plus the increase in digital capex, which will mainly be made in France and Spain where the most potential is seen in e-commerce, will lead to a gradual increase in nominal Capex, which we have forecasted to remain at around 2.2% of sales in the future. Although investments will be made towards smaller formats such as convenience stores, capital will also be required in hypermarkets as the company adopts the Maxi Method and encompasses stores to its omnichannel ecosystem.

Figure 19. ROIC evolution



Source: Own analysis and Company reports

ROIC and Growth rate

Operating ROIC is expected to stabilize at around 10% in the years to come, with the company needing to invest capital as previously discussed, and value being created as we foresee the projects being developed to be profitable in the future. For what concerns the steady state growth rate, the value is assumed to be 1.25% in the future after the estimation period mainly driven by e-commerce margins and by returns from the most fast-growing countries in which the company has invested, specifically Brazil and Argentina. With respect to forecasts in nominal GDP growth in France, the company's main market, which is expected to be 2.05% in 2026[12], we opted for a more conservative value due to possible setbacks and changes in the industry overall scenario.

Financials and risk analysis

WACC

Figure 20. WACC summary

WACC

Target Debt/Equity ratio	0.54
Relevered Beta	0.72
Cost of equity	6.69%
Cost of debt	2.59%
After-tax WACC	**5.024%**

Source: Own analysis

To develop the DCF model with which we have arrived at the valuation of the company, we used the weighted average cost of capital. The latter represents the blended cost of capital considering all the sources from which it is developed, which include all types of equity, be it common or preferred shares, and debt. The cost of each type of source is then weighted according to the relative percentage compared to total capital. In Carrefour's case, the mix of capital sources comprised both equity and debt, so the cost of both was calculated separately.

In order to calculate the cost of equity, we decided to use Capital Asset Pricing. To begin with, we estimated the risk-free rate with the 10-year German government bond representing the theoretical return of an investment without risks in the European region. Therefore, we found the risk-free rate to be equal to 2.183% as of April 2023.

Figure 21. Unlevered Beta analysis

Companies	Unlevered Beta
Carrefour SA	0.3382
Tesco Plc	0.62
Ahold Delhaize	0.26
Casino Guichard	0.1
Sainsbury Plc	1.24
Industry average	0.5116

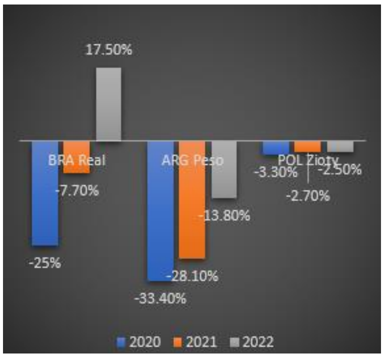
Source: Own analysis

To estimate the Beta of the company, the raw Beta was found by calculating the returns of Carrefour's stock starting from the weekly prices for the past five years with the returns of the MSCI World Index. Through the analysis of the slope of the returns, we obtained a first Beta of 0.47. The Beta was then unlevered by firstly assessing the target D/E ratio of the company through its historical average, which resulted in a 0.54 value, and then by applying the corporate tax

[12] France: Gross domestic product | Statista

rate, so as to arrive at a 0.34 Beta. Lastly, we adjusted the unlevered Beta by comparing it to the other unlevered Betas of the main competitors in the industry, and calculated the industry average, resulting in a final re-levered Beta of 0.72.

To estimate the market risk premium, we used the average value provided by Statista in 2022 for France, which amounted to 6.30%. As a result of the abovementioned parameters, we finally obtained a final cost of equity of 6.69%.



To calculate the cost of debt, two methods were used. The first method was the CAPM applied to debt, which entailed the same values for risk-free rate and market premium, but instead used a Beta for debt of 0.07 based on Kaplan estimates depending on credit spreads. In this case, we saw that Carrefour's rating has been Baa1 stable outlook for Moody's and BBB stable outlook for S&P Global as of 2022. Through the calculation of the CAPM, we arrived at a cost of debt of 2.59%. On the other hand, we also calculated the variable by dividing the net financial interest paid in 2022 with the total borrowings figure in 2021, which resulted in the exact same figure, with a cost of debt of 2.59%, which we hence used as the final estimate.

Finally, by maintaining the target D/E ratio of 0.54 for the foreseeable future, as there is no expectation for this figure to decrease in the short term, we have determined a **final WACC of 5.024%** for our valuation.

Sensitivity Analysis

In order to assess the risks of our analysis, it is crucial to see how the variation of WACC and the growth rate change the price estimation value. Through a sensitivity analysis, we have developed a vision of how a change in the weighted average cost of capital would impact the valuation. Such variable might be influenced by an eventual shift in the target D/E composition, in case the company decides to change its financing mix. When it comes to the cost of debt component of WACC, in a scenario where interest rates have increased consistently and in a macro scenario where central banks are targeting rising inflation, it might suffer from a significant change in both directions. The growth rate, which has been aligned with the average expected growth for French GDP, was accounted for in the analysis as different scenarios in the company's future projects and their successful implementation are key to the valuation process. From the analysis, it was possible to determine that for the same WACC value, higher growth rates lead to a higher target price. In particular, our estimates range from the lowest price of €18.18, to the highest value of €24.44.

Sensitivity Analysis		g				
	20.09	0.75%	1%	1.25%	1.50%	1.75%
WACC	4.024%	21.13	21.75	22.49	23.37	24.44
	4.524%	20.11	20.57	21.11	21.73	22.46
	5.024%	19.32	19.68	20.09	20.55	21.08
	5.524%	18.69	18.98	19.3	19.66	20.06
	6.024%	18.18	18.42	18.67	18.96	19.28

Figure 22. Currency exchange effects on sales

Source: Own analysis and company reports

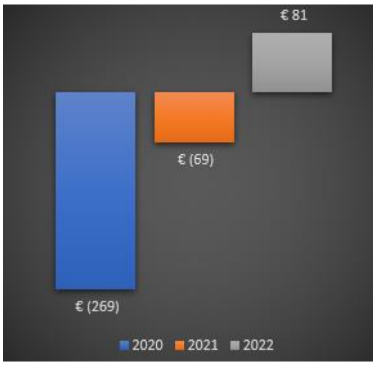
Risk Analysis

Currency Risk

Carrefour's operations are active in several countries outside the Eurozone, which implies a foreign exchange risk depending on currency rates when consolidating financial statements. As can be seen in figure 44, the impact mainly concerns Brazil Real and Argentina Peso, whose impacts have widely ranged in the last years. In 2022 as depicted in figure 45, the ForEx effect was positive for on both gross sales (+2.6%) and on recurring operating income (+€81 million). However, both due to political instabilities and heavy inflationary scenarios in the two countries, it is possible that negative results such as those in 2020 and 2021 might occur again.

Brazil expansion risk

Figure 23. Brazilian Real currency effect



Source: Own analysis

Carrefour has invested a consistent amount of capital for its expansion strategy in Brazil, with the acquisition of Groupo BIG being finalized in June 2022 for close to €1 billion.[13] The move's objective is to assert an ever more radicated position within the market, and expand to previously unexplored regions. It is however still uncertain whether the move will be successful and actually bring financial improvements to the LATAM division.

Technology implementation risk

As we have previously described, part of the successful outlook for Carrefour relies on the renovation of its operational structure, with the implementation of its digital technology within the entire value chain. Such scenario entails risks, as a delayed or inefficient application of the new systems might cause a loss of competitive advantage and a possible loss of market share in targeted markets.

Supply chain risk

[13] Carrefour reinforces its leading position in Brazil with the acquisition of Grupo BIG | Carrefour Group

The Chinese lockdown, the war in Ukraine, and the shortages in several sectors may be a problem when it comes to product availability, both for physical stores and for the e-commerce branch. Such an eventuality might be a cause for customer dissatisfaction and is a potential factor for market share loss in favour of other market participants. Moreover, issues might arise with suppliers, with major causes to be found in the steep inflation. It is key for the group to anticipate any possible shortages and in consumer demands, through precautionary buys.

Final recommendation

After having analysed the various elements influencing Carrefour's valuation for the future, and with a closing price of €18.3 as of May 16th, 2023, as well as an announced dividend of €0.56 per share in June 2023, our final recommendation is to BUY. The capital gain on the expected price of €20.09 in December would be of 9.27%, plus a 3% dividend yield per share, for a total return of 12.27%.

CARREFOUR

COMPANY REPORT

RETAIL GROCERY

17 MAY 2023

STUDENTS: TOMMASO PALMA CAMOZZI, TOMMASO SPOSITO

50764@novasbe.pt, 49407@novasbe.pt

The Carrefour Upside

Digitalization and LATAM driving value

- Sales are expected to grow with a CAGR of 4.3% between 2022 and 2027, through strong presence in growing countries and greater market share in native France market.
- Consistent investments in the digital channels and enhancement of the omnichannel ecosystem will provide better margins and a possible market leading position in France and Spain.
- Capex and investment in growing markets and areas, namely LATAM, will consolidate the geographical presence and market penetration, allowing for greater returns through the better EBIT margins in the region, 4.8% against 2.2% in France.
- Company is cash generating and will pursue a consistent €800 million share buyback in 2023, as well as a growing dividend, proving to be a value generating asset for investors.
- Buy recommendation has been chosen, as the estimated price for 2023 is EUR 20.09, meaning a capital gain of 9.3%.

Company description

Carrefour is a French global consumer goods retailer which has been operating since 1959, and currently serves over 40 countries through more than fourteen thousand stores.

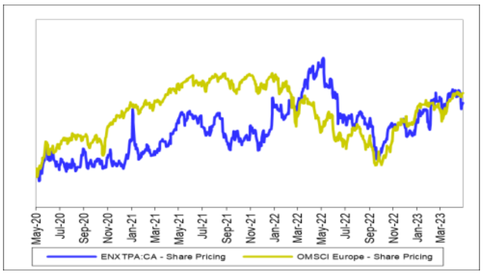
Recommendation:	**BUY**
Price Target FY21:	**20.09 €**
Price (as of 6-Jun-23)	**18.30 €**

https://finance.yahoo.com/quote/CA.PA

52-week range (€)	14.22-21.03
Market Cap (€m)	13,706B
Outstanding Shares (m)	732,157,461
Dividend per share (December 2022)	EUR 0.56

Source: Yahoo Finance and Reports

Carrefour vs MSCI Europe



Source: Bloomberg

(Values in € millions)	2022	2023E	2024F
Revenues	83,089	88,023	91,761
Gross Margin	19.6%	20.1%	20.2%
NOPLAT	598	972	889
Operating ROIC	13.7%	10.8%	11%
Net Debt	3,622	2,955	3,126

Source: Own analysis

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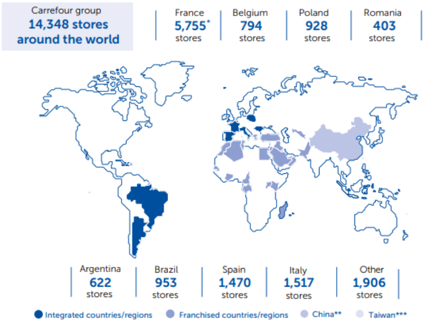
Company Overview

Figure 24. Geographical presence



Source: Company report

Carrefour SA is a French multinational group is a leader in global retail. It offers customers items adapted to their needs across the various countries and territories it operates in. Carrefour's business includes both food and non-food products, and the group also provides financial services.

With 321'000 employees, it operates in over 40 countries through 14'225 stores, and the activity can be divided into three large markets: Europe, Asia and South America. Carrefour's global total revenues were €83.1 bn in 2022, which mostly came from France (€37.71 bn). Like for Like growth[14] of the group was 8.5% from 2021 to 2022, driven by both inflation and volumes. In France alone the Group gained 470k new customers in 2022, which marked an important step-up in the market share in the country.

Carrefour was founded in 1959 and opened the first supermarket one year later; it was based on the self-service technique, first of all in a sales area of 200 square meters and then in an 850 square meters area. In 1963 they opened the first hypermarket, which included 400 free parking spaces. As a first mover in the retail sector, it was listed on the Paris stock market in 1970. In 1993 the company opened their first stores in Italy, and two years later they expanded operations to China.

In 1999 Carrefour became the world's second largest retail business with 240'000 employees and 9'000 stores, after the acquisition of Promodes through a public exchange offer.

Figure 25. Brand diversification

Source: Company report

Carrefour provides financial services in addition to non-food and food products. Relative to the latter, in order to ensure the freshness and quality of the food items, CA prefers a short supply chain. For example, 92% of the fruit and vegetables consumed in France today are produced by French farmers. The company also takes pride in satisfying the basic needs and preferences of the client, through a variety of sub-brands and private label offerings according to different consumption needs and possibilities, through different price ranges (Carrefour Bio, Carrefour Baby, Carrefour no gluten, Carrefour Vegetarian, etc.).

Beside the core business, Carrefour also provides other services which include local services ranging from package collection to key cutting, as well as vehicle

[14] Like-for-Like growth measures growth in sales in different time periods taking into account the same conditions.

hire, pharmacies, health and beauty products and fuel delivery. Other services also offered by Carrefour include financial and insurance services, travel agencies, and event ticketing counters. All of these services are readily available in-store, such as near the front desk, online, or through a mobile app.

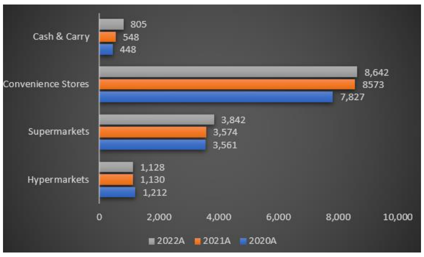
In general, Carrefour financial services consists in offering customers some credit and savings products (financing, saving and insurance solutions). As of today, this segment of Carrefour's operations counts 2.2 million customers today.

Distribution Channels

Carrefour Group is creating an omnichannel ecosystem by merging its physical stores with its online. E-commerce has increased a lot in the last few years, with 1.3 million visitors per day and 1.2bn sales in 2018.

There are four types of physical stores: convenience stores, supermarkets, hypermarkets, and cash & carry stores.

Figure 26. Stores per type of format

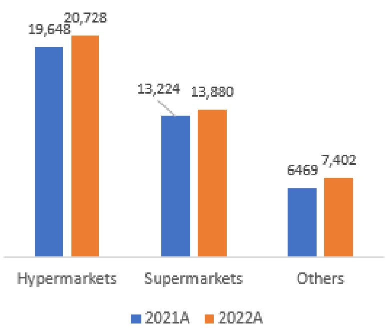


Source: Own analysis and Company reports

The **convenience stores** have a sales area ranging from 60 to 900 square meters and they represent the day to day living offer. They include several formats, in particular Proxi, Carrefour Bio, Carrefour Contact, Carrefour Express and Carrefour City. The main features are that they are located close to their customers with an offering that is adapted for the location, with attractive pricing and long store opening hours. There are more than 8'500 Carrefour convenience stores across the world and around 4'000 in France,

The **supermarket format** is present in cities and rural areas; the sales area is between 1000 and 3500 square meters. The main feature is to sell either a wide range of fresh and local products or non-food products adapted to the local customer base. There are more than 3'800 supermarkets worldwide.

Figure 27. Sales per format in France (€ million)



Source: Own analysis and Company reports

The Carrefour **hypermarket** has a mix of 20'000 to 70'000 products in a sales area ranging from 2400 to 23'000 square meters. Here it is possible to get fresh products prepared every day by artisans, as well as practical services such as banking and insurance. Typically, hypermarkets are located outside the main urban areas, and are accompanied by big parking lots. There are slightly over 1'100 hypermarkets worldwide, of which 250 in France.

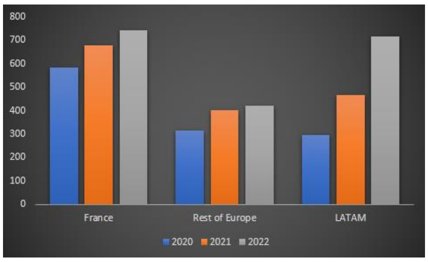
There is also another format, the **Cash and Carry**, that is expanding especially in Brazil. It offers retailers, caterers and professionals a vast range of food and non-food products presented on pallets, by unit or in multi-packs at wholesale prices.

Finally, Carrefour has been developing its e-commerce channels, which have been able to deliver a €4.2 bn GMV in 2022, a threefold value if compared to

2018. This has gone hand in hand with a 11pts increase in profitability in the last two years, and a total of 8bn transactions in the company's data basin. As of 2022, around 4,000 stores worldwide have been enabled to e-commerce functionality, and 45 fulfilment centers have been set around them.

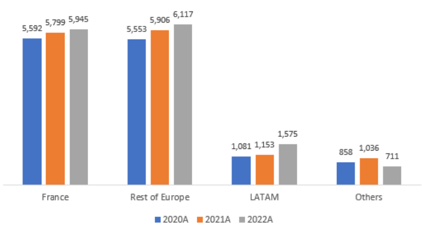
Geographical Markets

Figure 28. Operational investment by region (€ million)



Source: Own analysis and Company reports

Figure 29. Number of stores per region



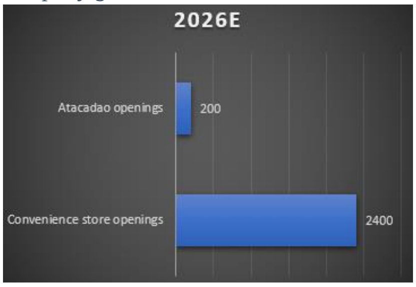
Source: Own analysis and Company reports

Carrefour operates in three large markets: France, Europe, and Latin America, where it is present in Brazil and Argentina. Until 2023 it was present also in China and Taiwan, but all operations ceased with the recent sale of the Asian branch in 2022.

France represents the company's domestic market and is the most important business area in terms of revenues, as of 2022, it accounts for 40% of the total revenues. There are three macro distribution channels in France: hypermarkets (50% of sales), supermarkets (33% of sales) and convenience (around 17% of sales). In France Carrefour has a market share of 21%, similar to Leclerc, its main competitor (22% of market share). In the last years they have gained market shares because of Casino's operational problems (another retailer in France, that accounts today for 7.5% of market share). It is relevant to focus on this business because Carrefour is facing some problems keeping the EBIT margin high and steady. In particular, there are some problems in France because of the presence of strong labor unions, which don't allow the company to reduce employee costs in order to increase the EBIT margin. The strategy here is to make some franchisee deals with some privates to bypass unions and cut costs.

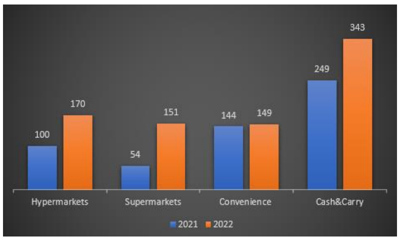
When it comes to distribution channels, Carrefour has foreseen to invest €3 bn in CAPEX as a group in its digital expansion until 2026, increasing the yearly average to €600 million per year, and it seeks to become market leader in France with a market share greater than 20%. Considering France also homes the most hypermarkets, which have historically been underperforming in the last decade, Carrefour has decided to adopt the Maxi Method. Said method consists in a simplified and adapted food offer, assorted through new data driven technologies and developing globally available products. For the non-food offer, massification

Figure 30. Brazil store openings per company goals



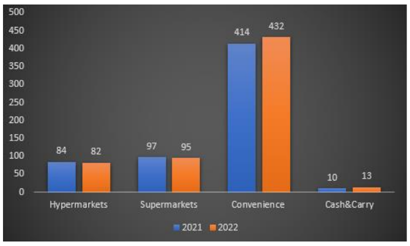
Source: Own analysis and Company reports

Figure 31. Store evolution per format Brazil



Source: Own analysis and Company reports

Figure 32. Store evolution per format Argentina



Source: Own analysis and Company reports

and legibility will be applied to make these products more desirable to customers. Specifically, own-brand products and private label products will reach 50% of total product share, which help both consumers with better price offerings, and Carrefour with margin improvements up to 40%[15].

Carrefour mainly operates in **five other countries in Europe**, namely Spain, Italy, Belgium, Poland and Romania. The most relevant country in terms of revenues is Spain, followed by Italy and Belgium. Poland is the business which is growing faster because it is an emerging market. The country performing worse in the area has been in Belgium, mainly due to very strong competition with the main adversary Colruyt, which sets the prices for the market and has unleashed a price war. In terms of EBIT margin, the European area ranks in between LATAM and France, and is an area in which the company still seeks to expand, with operational investments growing by €100 million since 2020 (figure 5). Carrefour currently has more than 6,000 stores under its banners in these countries, with a growing trend in convenience stores, which have increased from 3,100 in 2020 to nearly 3,500 in 2022.

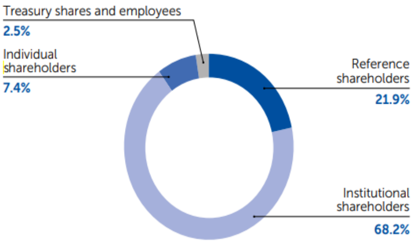
The business area that is growing faster is **Latin America**. In 2022, it represents 36% of total revenues, but in terms of EBIT margin it is better than France because the company is able to handle cost lines better. To expand its Brazil operations, in 2021 Carrefour has completed the acquisition of Groupo Big, which was finalized in 2022. Groupo Big was the third largest food retailer in Brazil, it accounted three billion of net sales with 388 stores. Such operation allowed to use openings and acquired stores to contribute to higher volumes and an overall 44.9% increase in net sales in 2022. Moreover, it will be crucial to acquire market penetration in regions where the company hadn't been able to do so previously, such as the South and North-East. As can be seen in figure 7, the total number of stores in Brazil has critically increased in the last year, and part of the Group strategy is to keep investing in Latin America because of the better margins and profitability.

The Asian region has been one of the longstanding areas of operations for Carrefour, with the first stores opening in the late 80s in China, and a further expansion later on in Taiwan. As of July 2022 though, Carrefour has signed an agreement to sell its stake in Carrefour Taiwan to Uni-President group for an EV

[15] Private Label For Profitability: Six Things To Consider - Retail TouchPoints

of around €2 billion, which should become effective in mid-2023. The company will continue to be part of licensees for the next 40 years, according to sale agreements.

Figure 33. Shareholder structure overview



Source: Own analysis

Shareholder Structure

Carrefour is a French public limited company, listed at the Euronext Paris stock market and is part of the CAC 40 index, that includes the 40 most capitalized companies in France. The share capital is divided into 732'157'461 million shares and the main shareholders are two families, Moulin (with around 10% of total shares) and Diniz family (with 7.9% of the total shares). The free float represents around 70% of total shares.

A few years ago, Auchan, a retail competitor of Carrefour, tried to acquire Carrefour. The potential deal was supposed to create a retailer with sales of 110 bn euros per year and a French market share of nearly 30%. Auchan had offered 21.5 euros per share (19.4 billion), but the Moulin Family opposed the deal because of valuation issues. As of today, it is possible that Auchan could come back with another offer in the next years.

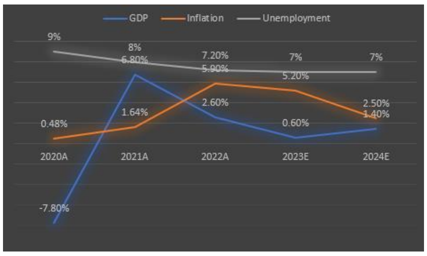
The company is currently in the process of buying back shares and will be for the remainder of the year for an estimated total of €800 million worth of stock. This sums a trend that Carrefour already began in 2021 with a €700 million share buyback.

The 2026 Strategy in Economic view

Carrefour announced the new 2026 strategy at the end of 2022, a strategy that contains a lot of the contents that have been analyzed previously. Economically speaking the new strategy can be translated into some important key elements. The objectives that Carrefour is trying to reach and in general the creation of a unique system, an omnichannel system that would add value to the Carrefour brand, should have some economic results that will help the group to have a better future growth. The creation of the new omnichannel system will give it results through a better valuation in future and a growth in the share price and multiples, which will allow Carrefour to stay at the same level, in terms of multiples, of comparable in its sector.

This generation of value consists of a target Free Cash Flow of at least 1.7 billion by 2026, in order to assure a payment of dividends to its shareholders and possibly to maintain a share buyback program that as well as dividends, creates value for owners of carrefour's shares. The strategy to reach the target Free Cash Flow includes also a new plan in terms of products that should be sold; basically, it consists of a higher private label penetration and a non-food assortment reduction. The private label sales target is 40% of food sales, versus the 33% of today. Of the total sales for Carrefour by 2026, 10 billion will come from e-commerce. Even for costs there is a plan that will let the group save one billion per year. The strategy to reach this objective is led by e-commerce, where half of those come from COGS and the other half from distribution and logistics.

Figure 34. France main economical indicators evolution



Source: Own analysis

Overall, this does not mean that the physical stores will disappear, physical stores will remain significant, and will be renovated. This is the reason why the Capex is expected to increase from 1.7 billion to 2 billion by 2026. In this scenario, digitalization will contribute an additional 600 million to the recurring operating income in 2026 versus 2021 with 200 million each from e-commerce, data and retail media and digitalization of financial services. Going deeper, the 600 million of incremental Ebit have the aim to develop e-commerce sales by increasing the share of wallets with its existing customer by 27% thanks to smoothness digital and omni-channel experience, and with the aim to monetize data and retail media revenues with suppliers. About monetizing data, media retail is another leg to the digital plan of Carrefour. With 8 billion transactions per year with 80 million customers, Carrefour Links will use, analyze and sell data to marketing companies; this will help the marketing companies to know about their customers, to know their target promotions and overall increase their volume sold.

At this point Carrefour can be considered one of the early movers in Europe. Carrefour will increase by around 50% of its investments in digital, with 3 billion dedicated plans between 2022 and 2026. The 2026 strategy is a plan that flags a new stage in Carrefour's development from the recovery period to a period of consolidation and expansion today.

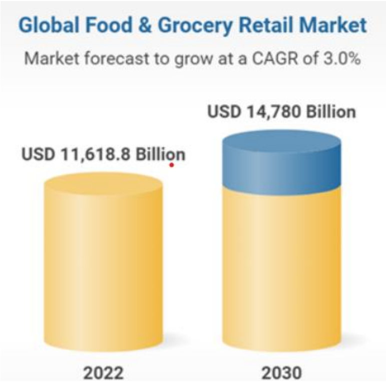
The retail Industry Overview

Carrefour is an international group that operates across several countries and within two continents. For this reason, the competition is different for each country and the players too. Retailers located in the markets covered by Carrefour are several, with different size and characteristics; there are also international groups that are not listed, so they can be consider direct competitors to Carrefour, but they don't follow the rules and the features of a listed company.

Food Retail Sector

The global food and grocery retail market size in 2021 is valued at over 11’000 billion dollars, with a growth expectation for the future of 3.0% CAGR (compound annual growth rate). Of the over 11’000 billion dollar of global retail market size, 1’800 billion is the size of the Europe market, expecting to grow at 4% CAGR until 2026.

Figure 35. Global Food & retail market CAGR



Source: Research and Markets

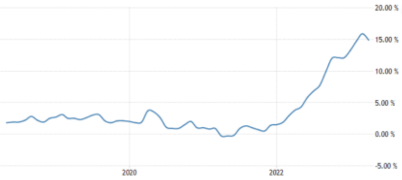
Because of the market volatility caused by the pandemic situation, that created instability even in a defensive sector as the retail one, grocery retailers were forced to restructure their supply chains, explore private label goods, and expand their supplier network to meet consumer demand.[16]

The entire business has been driven to digitalization by omnichannel mass merchandisers. Consumers are driving the development and acceptance of new grocery models to match their retail and service consumption patterns. The supermarket and hypermarkets segment led the market in 2021 and accounted for the largest revenue share of more than 64%. The Covid-19 crisis has increased the e-commerce penetration, that now ranges from between 3% to 11% of grocery sales.[17] The growing penetration of the e-commerce for groceries brings about some challenges for established retail companies; first of all, companies slow or reluctant to embrace the digital transition face the risk of losing market shares; in addition, online grocery sales are made at a loss irrespective of the delivery mode using the most common order-fulfillment methods. Grocery e-commerce entails higher costs because part of the service value chain, as delivery, is transferred back from the customer to the retailer while the associated expenses are not fully passed onto service fees.

The e-commerce challenge for retailers is different between countries; for example, UK and France are the most at risk, given the already high penetration rates of grocery e-commerce. Both of them share higher market concentration, as well as the dominance of players historically strong in supermarkets and hypermarkets, and comparatively early to embrace grocery e-commerce.

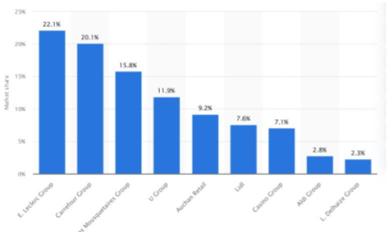
[16] Food & grocery retail Market Size, Share & trends | Grand View Research
[17] European food retailers: the bitter digital aftertaste of the Covid-19 legacy| Allianz

Figure 36. French food inflation evolution



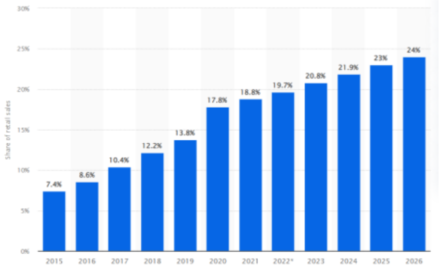
Source: Trading Economics

Figure 37. grocery retail market share in France, 2022



Source: Statista

Figure 38. Ecommerce % sales in the retail sector



Source: Statista

France – ecomomy and industry overview

France is Carrefour's most important market and is expected to hold the largest share of revenues in the future. In recent years, the French economy has experienced a shock in GDP growth in 2020, mainly due to the Covid-19 pandemic, which was however followed by a consistent rebound. In the future, GDP growth is estimated to be on the rise, with a forecasted value of 1.4% for 2024. Inflation has also risen following the strong economic rebound occurred in 2021, and in particular food inflation, as seen in figure 10, has peaked in the most recent months to a value around 15%.

When it comes to the grocery retail industry in France, there are many players involved and the competition is strong. As can be seen in Figure 13, the market leader for share is Leclerc Group, followed by Carrefour and Les Mousquetaires. Margins within the market have been eroded by the strong competition, as well as the high employee costs due to strong labor union presence which allow for little space of maneuver.

Digitalization and the omnichannel strategy

The last few years have been crucial for some specific sectors in terms of consumer behaviors and preferences, in fact the digitalization that started in the first years of the new millennium started to accelerate during the pandemic.

The sector of retailers in general and specifically the food retail market started to adapt by improving the e-commerce store, and customers have been forced in a to start shopping online due to the emergency. In this context, Carrefour's project is ambitious, concerned with the creation of an omni-channel that links both online and offline experiences through a correct use of digitalization.

In the last years the food gross volume from the e-commerce increased by 3x, with 3 million more online customers and 800 million visits per year. Online sales among retail sector companies account today for 20% of total sales (figure 14), but in the grocery sector the situation is different; online sales are 3% of total sales. This is why an improvement is necessary in digital channels to fill the gap with physical in-store experiences for customers.

The in-store shopping allows customers to easily compare products and prices, to find discounts and to look at the freshness of some products as fish, meat and vegetables. It is clear in general that shopping online is a less friendly experience[18] and for this reason Carrefour is trying to improve this area of business.

Some examples of partnerships Carrefour is developing to improve online sales:

- Google: customers can buy products through Google's platform, even through smart assistants such as Alexa.
- Uber and Glovo: instant delivery model with deliveries in under 30 minutes by easily ordering from the app.

With the new system online sales will represent an extra portion of sales, now quantified around 22% of gross volume more, with the objective to reach 27% more at the end of the year. Hence, the physical stores will remain important through three key features: value (in terms of low prices), convenience (facilitate access to stores by carefully choosing their location) and experience (online will remain always less friendly experience than offline).

The omnichannel blend

The market trend that we analyzed before is pushing up the online experience as a fundamental source of value for retailers. As we said this is just a starting point because Carrefour takes advantage of this customer's behavior to create an omni-channel system that can capture new possible sales. The competition indeed has become more aggressive, and the change of consumer's preferences forced Carrefour to build a new strategic plan in order to assure a success positioning in future.

The strategy consists of the creation of a unique network. The digital technology allows Carrefour to turn the multiplicity of the formats from a factor of complexity into an asset, hence it will create a unique ecosystem that offers to customers a personalized experience. A customer that goes omni-channel increases spending by 22% in the first year and 27% in the second year, in order to reach 30% omni-channel customers by 2026 and 2.5 billion yearly visits on digital asset.

Trends to follow in creating a winning omnichannel ecosystem include:

- Personalization: differentiation from competition is key, however is not a simple task due to reduced brand identity within the grocery industry, a tool to use is a functioning app and website for the best experience.
- Retail media market: it is a fast-growing segment, forecasted to exceed 5 billion by 2026. Carrefour has signed an alliance with Publicis Groupe[19] to expand in this area. On a practical level it will consist in a technology

[18] Restaurant & Food Retail - Industry Overview – Investment Bank
[19] Carrefour and Publicis join forces to create a leader in the European and LATAM retail media market

for inventory creation and data solutions for advertisers, backed directly by merchant transactions, across Europe, Brazil and Argentina.

Data Analysis and Customer experience

The Carrefour platform and the pursuit of the omni-channel can help customization, to stay as close as possible with the requests of clients and what they need and what they are searching for. The idea behind the customization is to take advantage from the digitalization to analyze the consumers data in order to personalize the offers.

Figure 39. Loyalty program costs evolution

Source: Own analysis

The customer journey starts with the loyalty customer card, a card where it is possible to find personalized offers. Anytime the client starts shopping online, through the artificial intelligence it is possible to analyze data and to save the preferences of consumers, such that it is a support to predict and to customize the offers for the next time. Just by looking at the recurring purchases of a customer, it is possible to implement a system that create a 58% basket predicted. As can be seen in figure 15, we forecasted loyalty program costs to slightly decrease relative to thanks to technological implementations.

E-commerce within the digital ecosystem

The grocery retail industry has been characterized by small gross margins and inconsistent growth within its more saturated markets. This was mostly due to evaporated profitability driven by increase in overall costs and price pressure from competitors and other players such as discounters and online marketplaces, which are putting at risk up to $700 billion in revenues[20]. New technologies and more automation need to be launched so as to cut both retail prices and labor costs, as well as allow a consistent share of sales to shift towards e-commerce.

Unprofitability in the e-commerce sector

Historically, the e-commerce sector has been underperforming due to the following factors:

- Logistics behind the digital orders are far more complex than what they appear since retailers must be able to stock up more than in physical stores.

[20] Reviving grocery retail: six imperatives. https://www.mckinsey.com/industries/retail/our-insights/reviving-grocery-retail-six-imperatives

- The incapability to deliver to various locations while optimizing milage and timeframe requirements by customers, while making sure the correct items are always selected and delivered in optimal conditions[21].
- $10 per $100 spent net P&L differences between an average physical basket, and an online basket in the US in 2022
- Impossibility to adopt the traditional e-commerce tax surplus on prices, with shifting trends in consumer willingness to pay premiums.

E-commerce channel - Carrefour

Behind the spotlight under which e-commerce now stands, several factors have made it possible for this channel and the demand for it to expand and be the main driver for retail grocery performance in future outlooks. In Carrefour's estimates, by 2026 the company will be able to triple its GMV from e-commerce from €3.3bn to €10bn, bolted by the digitalization of its financial services to encompass its customers in multiple aspects of their consumer habits[22]. Drivers for such perspectives lie behind several factors that have shaped a new scenario in the market.

Consumer trends

To understand why consumers have shifted to online grocery delivery as a preference in such a short time stretch, the 2020 pandemic has been a key factor. The following analysis summarises the principal trends shaping the digital channel for retailers and Carrefour in particular.

- The **channel mix** saw the online segment take up to 30% of all revenues during the lockdowns, and settle up to 9% after lockdowns were lifted, compared to 3% pre-pandemic.[23]
- Low consumer use of e-commerce led retailers to low investments, hence a worse experience on online platforms. Sharp rises in demand for digital channel availability have increased investments in e-commerce, like Carrefour's forecasted €600 million in yearly digital capex through 2026.[24]
- Different age ranges of the population getting involved with the digital channel, demand has also spread to less urbanized regions.

[21] https://www.forbes.com/sites/dennismitzner/2022/07/31/grocery-retailers-and-the-food-market-trends-and-future-prospects/

[22] Carrefour Universal Registration Document 2022
[23] The future of grocery retail: New ways for growth | McKinsey, 2022
[24] Digital Day Presentation – Carrefour, 2022

Convenience is also a key characteristic influencing consumer choice, hence the need to evolve instant delivery.

Industry trends

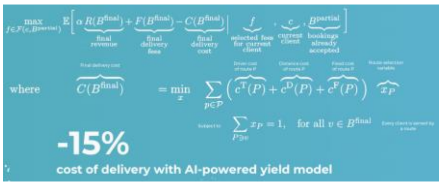
Within the industry, competition has been growing to satisfy the demand for online delivery. In fact, both online marketplaces such as Amazon and Walmart, as well as pure online players are offering parallel services to those made available by grocery retailers. The result is that major investments must be redirected towards the creation of a self-sustaining and effective logistical setup to be able to keep up with the competition. Carrefour has already forecasted its CAPEX to increase to €3bn up to 2026, in order to adapt its IT capacity, data management and e-commerce network through automation and robotization allowing profitability to increase with declining costs.

Technology

To begin with, the adoption of analytics and AI to better assort products both in the online offerings and in physical stores can be key to consistently better results, with an estimated 3-6% of additional sales.[25]

In particular, this function can allow specific stores to adapt to different geographical preferences, even at a regional and urban level, so as to offer the best product range for each case. Moreover, within the warehouses and fulfilment centers, which Carrefour is planning to expand in number, new technologies must be implemented to allow for increased automation which can consistently cut costs from picking in the chain of e-commerce deliveries.

Figure 40. Cost of delivery yield model equation



Source: Digital Day presentation - Carrefour

Carrefour has also developed a complex equation for last mile costs, to optimize delivery expense and save up to 15% with its AI-powered yield model, as can be seen in figure 16. Such a technology, as well as an optimal organization of fulfilment centers between in-store, micro, and macro centers, some of which automated, will help increase margins overall in the e-commerce segment which is expected to generate an operating profit of €200 million in the years to come.

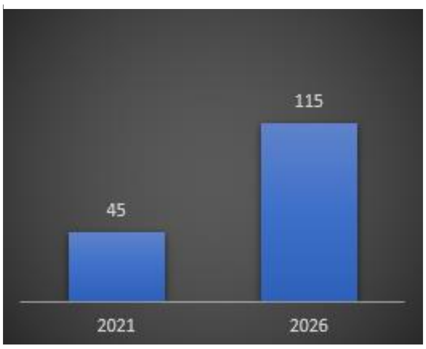
Cost cuts and scalability

Alongside investments in new technologies, cost cuts are possible in different steps of the delivery process. The different picking options available to cut costs range from the use of workforce in stores as a hybrid between customers and online order fulfilment, to the introduction of new fulfilment centers.[26] Delivery

[25] E-commerce is shifting how European grocers seek profitable growth | McKinsey, 2022
[26] The future of grocery retail: New ways for growth | McKinsey

costs represent a big problem as of today, but this can be resolved through partnerships with third parties, such as Uber Eats and Cajoo[27] for Carrefour, that avoid major fleet costs and extra labor dedicated to deliveries.

Figure 41. Fulfilment centers, evolution



Source: Own analysis and company reports

Fulfilment centers

A greater reliance on e-commerce entails the adaptation of the structure supporting the storage of products to fulfil the demand for shipped and delivered goods. In this sense, Carrefour has envisioned the opening of at least 70 new fulfilment centers, most of which will be dark stores. A dark store is a micro-center that is designed to fulfil digital orders and can help improve efficiency and cost-effectiveness of online orders, as it can support multiple stores from one location.[28]). These stores also hold a predisposition for automation, as there is no customer interaction, and they tend to be an easy way to cut labor costs.

Peer Analysis

To further understand the trends and competition Carrefour faces within the industry, an in-depth analysis of three main publicly listed competitors was conducted, in particular Casino, Ahold-Delhaize, and Tesco. It is worth mentioning that the company also has privately owned competitors from which limited data is available, such as Auchan in the French market.

Casino

Figure 42. Casino financial data

Casino	
Revenues	34,004
EBITDA	2,043
Gross Margin	23.20%
EBITDA Margin	7.3%

Source: Bloomberg

Casino is a group established almost 125 years ago and located in France and Latin America through 11500 stores and 208'000 employees. It accounts for 40 billion in net sales and an EBIT of 1.4 billion.

Casino owns some of the most differentiated French retailer and the second e-commerce retailer behind Amazon.

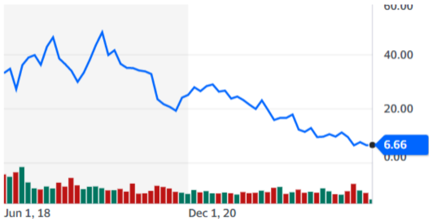
Casino is a heavily indebted group; In 2021 the combination of still depressed tourist visits and a recovery in out-to-home food consumption has become toxic combination for Casino's critical profit generators Monoprix and Franprix. The profit warning anticipates a very tough 2022 and 2023.[29]

Casino is in a weak position in the future because of the combination of two factors: the first one is the sizeable market share losses of recent years and the

[27] Uber, Carrefour expand partnership to speed up deliveries in Paris | Reuters
[28] Dark Stores: The Key To Online Grocery Efficiency And Profitability (forbes.com)
[29] French supermarket group Casino's shares slump after profit warning | Euronews.next

second one is the highly leveraged balance sheet. It is now the sixth largest French grocer with about 7.5% of market share, far behind leaders Leclerc and Carrefour with 22.7% and 20% respectively.

Figure 43. Share price trend Casino Groupe



Source: Yahoo Finance

Naouri, who controls Casino through some holding companies as Rallye, was forced in 2019 to put all of them in a court protected restructuring procedure, known as "procedure de sauvergarde" under French law. It is similar to a bankruptcy proceeding and gives some years to pay down debts. They have planned to offload 4.5 billion in assets to pay down their own debts. However, as a result of the pandemic crisis, Naouri obtained a court extension on debts that Rallye was expected to have to pay in 2023, pushing them back to 2025.

Figure 44. % sales online in France and globally

Source: Casino annual report

The economic problems that Casino is facing nowadays come from past misleading behavior. Financial pressure, hedge fund attack and unsustainable credit default swap levels led Casino to cash-in 4 billion from Asian disposals in 2016. The management's priority was to stabilize group domestic cash equation while deleveraging the balance sheet, but it became hard to handle the situation due to the fact that most of the group's debt was held by Casino's domestic parent company while most of the free cash flow was produced by listed subsidiaries as Big C in Thailand and CBD in Brazil.

Moreover, there were minority shareholders that were abroad, and for this reason Casino had some difficulties repatriating some cash from abroad to deleverage domestically.

An additional problem for Casino was that repeated major disposals have not been enough to definitively reinforce Casino's balance sheet and lead the rating agencies to re-rate Casino to investment grade.

Figure 45. Financial data Ahold Delhaize

Ahold Delhaize	
Revenues	86,984
EBITDA	7,505
Gross Margin	26.80%
EBITDA Margin	6.50%

Source: Bloomberg

Ahold Delhaize

Ahold Delhaize is one of the world's largest food retail groups, formed in 2016 from the merger of Ahold and Delhaize Group. It has 414,000 employees and over 7'500 local stores. Ahold registered in 2022 87 billion of Net Sales and with a net income of 2.5 billion. The group is located primarily in the US, which accounts the 63% of total net sales, and Europe. In particular, in the US market Ahold Delhaize has accelerated in the last few years the digital transformation with no strong buffer to offset margin pressure.

Furthermore, Ahold owns the oldest grocery delivery pure play since 2001, when it acquired Peapod, which in that moment was listed. But the company couldn't take advantage of this first mover US advantage because the business model was fragile and profitability low. As Amazon, Walmart and Kroger are all pushing on the speed pedal, Ahold Delhaize has no other choice than to join the race and leverage its 2'000 stores across the East Coast.

Figure 46. Share price trend Ahold Delhaize

Source: Yahoo Finance

Another market that is fundamental for Ahold is the Dutch one, which accounts for 23% of total net sales, and here it has been always stable in terms of growth trends; Ahold remains the market leader; for this reason, it has been more resilient over the pandemic period; it allowed Ahold to keep margin resilience and to take advantage from the merger to create cost synergies.

Figure 47. % of online sales for grocery, and net overall – Ahold Delhaize

Source: Ahold Delhaize annual report

Tesco

Tesco Plc is a retail company, a leading multinational retailer, with more than 345'000 colleagues and a larger variety of formats and brands to be in line with all consumers preferences. It was created in London in 1919, it started to expand until becoming nowadays one of the biggest retailers in Europe and the biggest in UK, with 57 group billion sales and 2.8 billion group adjusted operating profit. The strong cash generation allows Tesco to satisfy its shareholders through a program of both dividends and share buyback: in 2019-20 the shareholder return accounted for 700 million and the entire sum was due to the dividend program. In 2022-23 the total return is more than double; it accounts for 1.6 billion with the contribution of both Dividends and Share buyback. Revenues has grown at 5.1% growth rate year on year and the EBIT margin for the group is today at 4%.

Figure 48. Tesco financial data

Tesco	
Revenues	61,383
EBITDA	3,346
Gross Margin	7.30%
EBITDA Margin	5.90%

Source: Bloomberg

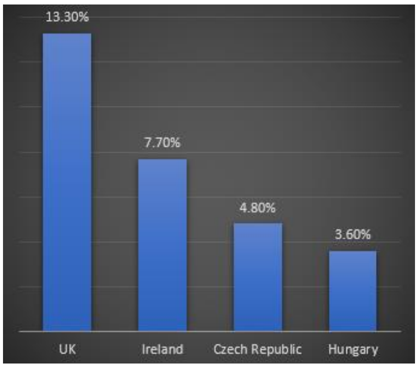
In terms of digitalization, Tesco remains one of the retailers with a more solid value proposition. It counts over 14 million Clubcard app users across the Group with a penetration of 80% and over 50 million transactions each week. Online sales have grown a lot since 2019; in two years they increased more than 50%.

Figure 49. Share price trend Tesco

Source: Yahoo finance

Tesco has disclosed its expectations for the future in terms of capital allocation; the group aims to reinvest in business and customer offer without giving up paying shareholders with dividends; any extra surplus would be used as cash back to shareholders, which can be in form of share buyback. Another objective of Tesco concerns on maintaining a target leverage at 2.8 – 2.3 times Net debt/EBITDA, and a Capital Expenditure within a range of 0.9 billion to 1.2 billion per year.

Figure 50. % online sales in different countries, Tesco



Source: Tesco annual report

But the problem for Tesco is the level of inflation that has been reach nowadays, which represents a problem for retailers in general; Tesco has some issues to increase profits this year; it is difficult for the group to transfer to customers the entire price increase. This results in a future flat retail adjusted operating profit. It also represented a strategy for Tesco, to maintain lower prices in order to be competitive without losing market share. But the management predicted that inflation would come down later this year, led by falling prices in commodities but prices seem to stay higher for a longer period. Despite profits are expected to be flat for this year, the continuation of its share buyback scheme and strong execution of its strategy mean Tesco remains in good shape. [30]

Multiples Valuation

Figure 51. Multiples analysis

Carrefour Group Valuation		
	EV/Revenue	EV/EBITDA
Implied Enterprise Value	€ 38,315.91	€ 32,988.31
Less: Total Debt	(19,229.0)	(19,229.0)
Implied Equity Value	**€ 19,086.91**	**€ 13,759.31**
Fully Diluted Shares Outstanding	732.00	732.00
Implied Share Price	**€ 26.08**	**€ 18.80**
Current share price	**€ 18.30**	**€ 18.30**

Average		
Share price	**€**	**22.44**

Source: Own analysis

After the analysis of the main characteristics of comparable peers in the industry, we have decided to conduct a valuation of Carrefour through the use of multiples. In particular, we first found the single values for the EV/EBITDA and EV/Revenues multiples for the abovementioned competitors and then used industry averages to estimate Carrefour's price. As we can deduct from figure 27, the analysis of the multiples eventually came down to an average of 7.10x for EV/EBITDA, and a target valuation of €18.80, and an average value of 0.46x for EV/Revenues, which resulted in a €26.08 target price for the company. An average of the two estimations led to a target €22.44 share price.

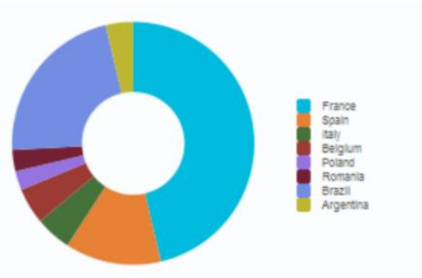
Valuation

To value the company, we decided to use the Discounted Cash Flow model. This model uses the estimated cash flows the company will produce in the future based on the expected performance. By using these estimations together with the WACC and expected growth rate, we find the Enterprise Value of the company, from which we subtract both net financial assets and non-core capital to find Carrefour's equity value, and consequently the value of its share. Before doing so, we have analyzed the main drivers.

[30] Tesco profits dip on soaring costs | This Is Money

Revenues

Figure 52. Revenues per country, 2022



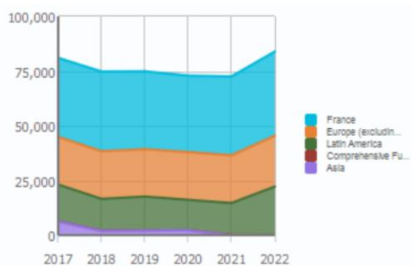
Source: Own analysis and company report

Carrefour has historically operated in five main geographical areas, through the use of different store formats. Traditionally, the main stores utilized by the group have been hypermarkets, which are the biggest retail stores offering a wide variety of products, both food and non-food at convenient prices, and supermarkets, which instead generally have a smaller surface area and specialize in the offering of the fresh and local products, as well as a range of non-food products adapted for the customer base in which they can be found.

More recently, the company has expanded both its convenience stores, which are smaller stores typically situated in urban areas where a selection of the most common products are offered, and which offer long opening hours, and its cash & carry stores, especially in Brazil, which is targeted to retailers and other professionals wide ranges of food and non-food products presented through pallets, at wholesale prices.

Lastly, Carrefour has been merging physical stores with its online offering, so as to create an omnichannel ecosystem that encompasses both dimensions, and presents various services, from the Click & Collect to the Home or Express deliveries, which will be a consistent portion of the company's future sales and margins.

Figure 53. Sales per country evolution



Source: Own analysis and company report

France

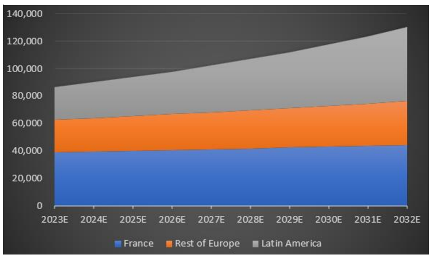
France represents the main market for Carrefour's operations and will continue to do so in our future expectations. Similarly to what has happened in all countries within Western Europe, Carrefour has experienced a slow growth from the bigger format stores, in particular if considering the like-for-like performance, hypermarkets were up 1.8% in 2022 and supermarkets were up 2.2% in 2022.

France accounts in 2022 for 46% of the total Revenues of the Group. It is the most relevant area, and it has started to grow in 2021 after two years of issues, due to the Covid Pandemic. In 2022 revenues has grown by 6.9%; there are two main factors that led France to improve their revenues. The first factor is represented by inflation. Carrefour was able last year to exercise pricing power, the ability to transfer the increase of prices to the consumers, without losing volume. Secondly, Carrefour improved its revenues in volumes, acquiring market share due to Casino's difficulties. About the future, we think Carrefour will be able to improve their revenues in France in line with inflation; assuming that inflation then subsides at the end of the year, the revenue forecast growth will stand in a range between 4% and 5%, in line with the past and with the food retail sector.

Rest of Europe

The Europe area includes countries as Spain, Italy, Belgium, Poland and Romania. They are grouped together but there are different features that characterized each of them. All of these countries account for the 28% of the revenues, led by Spain in first place. Spain and Italy are the most relevant countries in terms of revenues. The trend of sales in these two countries has been quite erratic in recent years, due to inflation and competition that characterizes these two countries. Carrefour in Belgium is facing a lot of troubles in this historical period; the growth of revenues suffers particularly and has even been negative in the last two years. Expectations for the future are zero growth. Finally, Poland and Romania can be considered as emerging countries. Carrefour has invested a lot because there is the opportunity of settling in and quickly gaining market share. Prices and costs are competitive in these developing countries, and this helps western European companies to integrate.

Figure 54. Revenue estimation per region



Source: Own analysis

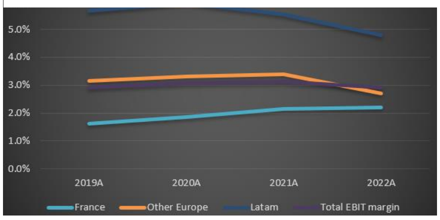
Latam

The Latin America business is the most recent one. Carrefour decided to expand here to find new opportunities for growth. Carrefour operates in Latin America within two countries, Brazil and Argentina. Together, they account for 26% of total revenues, despite Brazil is the one that contribute the most, with 18 billion revenues. Latin America is important because it is the area where Carrefour grows the most. Therefore, Carrefour continues to invest there by opening of new stores. It this scenario, to predict the future revenues it is crucial to consider the like for like growth, that focus only on the organic growth, without considering the additional revenues that come from the opening of new stores rather than the ability of Carrefour to increase volume and price mix in stores it already has. To make an example, in 2022 Carrefour in Brazil had a growth of 50% year on year; to make some forecasts however, we cannot put that growth for the future, because it takes into account a “one off” growth that come from the opening of new stores. Rather, it is correct to consider the like for like growth, which was 12% in 2022. Since in 2023 the inflation will remain higher, we estimate that Carrefour in Brazil will have a growth of 10%, followed by 8% growth in subsequent years.

Revenues Conclusions

In conclusion, the year 2022 can be considered a “one off” year because of the inflation that characterized an increase in prices. 2023 will remain a particular year because inflation seems to remain at higher levels. In this scenario it is crucial the ability of Carrefour to pass on the price increase to consumers without losing volume and market share. In terms of revenues, France remains the area to focus on because it represents 50% of revenues, therefore any slight change in growth estimates can lead to very different scenarios in the valuation of the company.

Figure 55. EBIT margin per region and total



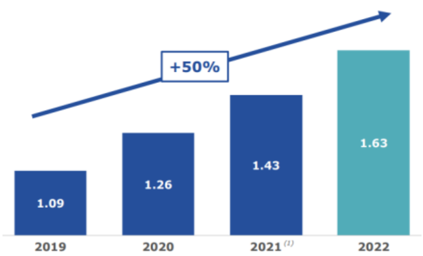
Source: Own analysis

EBIT and EBIT Margin

Carrefour's EBIT margins are really different from one geographic area to another. The group's EBIT in 2022 was €2.3 billion, and it grew by 8.3% year-over-year; overall Carrefour handled the issue of inflation in the correct way, by exercising pricing power in order to maintain the same growth for revenues and EBIT. This has translated into an EBIT margin that didn't decrease in the last year. More specifically, we can analyze EBIT structures to see differences between areas of operation.

France's EBIT in 2022 was €830 million, starting from €37 billion in revenues. This entails an overall low margin contribution to the group total, specifically the EBIT margin in France was 2.2%, the lowest within the group and significantly low compared with the sector average. Historically, Carrefour in France has always struggled on margins for several reasons. First of all, the fierce competition in the food retailers' sector in France means that prices must remain competitive. Moreover, there is a structural problem in the country, the cumbersome presence of very strong trade unions which defend workers' wages. Carrefour has high employee costs and has difficulty cutting them, which does not allow the group to increase its margins, which suffer as a result. A remedy strategy implemented by Carrefour is to adopt franchise contracts, in order to circumvent the dismissal policies and hire new employees with lower wages through the franchisees. In order to guarantee competitiveness in the market, the marginality in France is crucial for the performance of the whole group.

Figure 56. Earnings per share



Source: Company report

If on the one hand France is the most important geographical area in terms of Revenues, on the other hand Latin America is the most important in terms of EBIT. With €21 billion revenues, Carrefour in Latam is able to generate €1 billion of EBIT, with an EBIT margin contribution of 4.8%, standing at more than double the margin in France. This is the area in which Carrefour is growing the most, and for this reason it is essential to continue investing here. Any decrease in margins in Brazil would have a huge impact on net income and in general on the valuation of Carrefour.

Cash Flow Analysis

In terms of company valuation, a major success factor for Carrefour is whether the company will be able to ensure its shareholders a dividend and a share buyback. The ability of Carrefour to generate cash from its activities is explained through the cash flow from operations. It remains positive for 2022 and it is growing. In 2017 Carrefour generated €2.6 billion worth of cash, in 2022 the value grew up to €4 billion. Most of this cash is used by Carrefour for investments, in order to ensure that the business can continue in future.

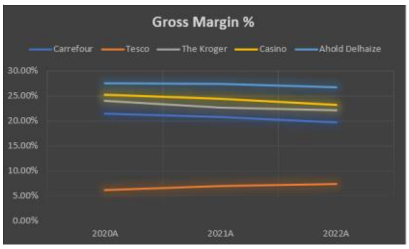
Figure 57. Share buybacks and dividends

Source: Company report

The remaining part of the cash available has allowed Carrefour to return money to shareholders, in terms of Dividends and Share buyback. It seems that Carrefour is able to provide these two remuneration tools even in future.

The food retail sector is considered a visible sector. It means that a retailer has a lot of costs of sales, but a great part of the EBIT that generates can be considered as cash because the investments are not so relevant. For this reason, a food retailer with an EBIT margin of around 4% can be considered healthy. Carrefour is characterized by a consistent Net Debt which until now has never been considered a problem due to the group's ability to generate enough cash to repay any borrowing without significant issues or delays.

Figure 58. Gross margin % grocery retail industry

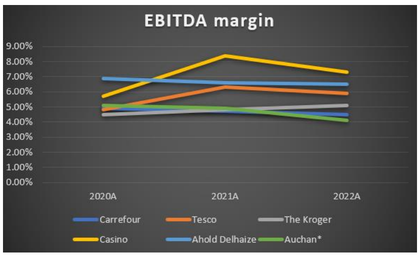


Source: Own analysis

Costs

The grocery retail industry mainly relies on sales of food and non-food goods, hence the cost line referring to cost of goods sold is particularly high compared to other industries, with relatively small gross margins across the whole market. In particular, for Carrefour cost of goods sold corresponded to an average of 79.4% of total revenues in the last three years, which corresponds to one of the lowest values considering the industry and main competitors, with the exception of Tesco which however has a different structure.

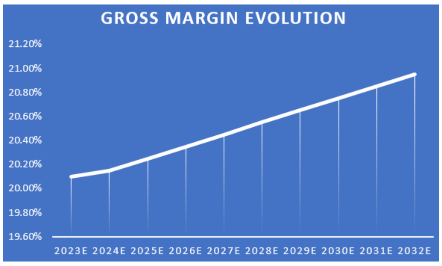
Figure 59. EBITDA margin grocery retail industry



Source: Own analysis

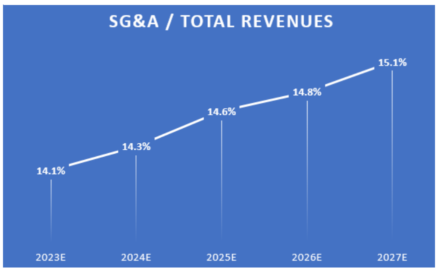
As can be seen from Figure 34, the average gross margin of the industry settles at around 25% for the last three years, whereas Carrefour's value has been 20.6%, albeit with a positive trend. To this end, Carrefour has projected its costs to be reduced by €4 billion in the next four years. In order to achieve said better cost management, the Group has designed a new organizational scheme for its activities to pool specific activities in the various geographical areas of operation,

Figure 60. Gross margin evolution Carrefour



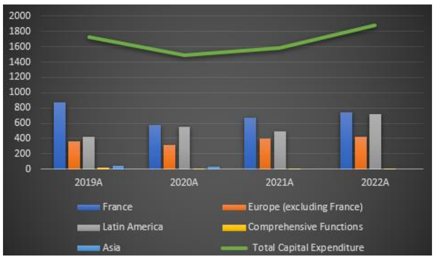
Source: Own analysis

Figure 61. SG&A margins evolution



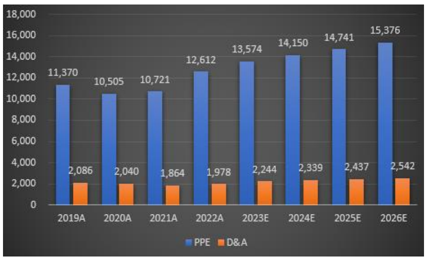
Source: Own analysis

Figure 62. CAPEX evolution per region



Source: Own analysis and Company reports

Figure 63. PPE and D&A evolution



Source: Own analysis and Company reports

so as to reduce head office costs. Moreover, the digital transition the company has envisioned for its future will allow for lower costs through an industrial approach to private labels and the mutualization of offer and purchasing across countries. Furthermore, Carrefour's acquisitions of Groupo BIG in Brazil which could help benefit from economies of scale and hence cost optimization. We have forecasted the gross margin to gradually increase from the 19.6% value of 2022 linearly to a value of 21% in 2032, as depicted in Figure 36.

With regards to operative costs such as repairs, and energy consumption costs, there has most recently been a significant increase in the latter, mainly due to the energy price spike in Europe following the conflict currently going on in Ukraine. In the future however, Carrefour foresees its energy supply to be renewable generated entirely for its e-commerce operations in 2030, as well as an overall consumption reduction of 20% in energy consumption by 2026 for the whole group. To further support such efforts, Carrefour has planned to implant 4.5 million square meters of photovoltaic surface to generate energy through its car parks.

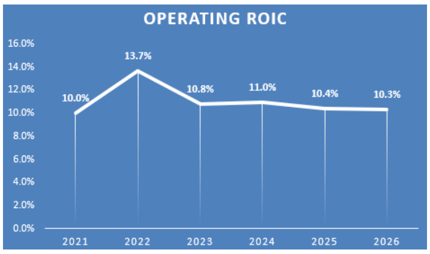
Other important costs Carrefour has within its SG&A, mainly employee benefits, advertising costs, and property rentals, they have been increasing in absolute terms in recent years in line with the expansion the company has been putting in act in recent years, but a big improvement was registered in the relative weight with respect to total revenues, and we foresee such expenses to remain between the current 14.4% and 15% in 2027 (Figure 38).

CAPEX

In the process of calculating the FCF, we analyzed the capital expenditure Carrefour has had in the past and the division between different areas. An interesting trend, confirmed by the expansion strategy and acquisitions Carrefour has most recently finalized, is the steep increase in Capex in the LATAM region, from 24% in 2019 to 38% of total in 2022. This trend, plus the increase in digital capex, which will mainly be made in France and Spain where the most potential is seen in e-commerce, will lead to a gradual increase in nominal Capex, which we have forecasted to remain at around 2.2% of sales in the future. Although investments will be made towards smaller formats such as convenience stores, capital will also be required in hypermarkets as the company adopts the Maxi Method and encompasses stores to its omnichannel ecosystem.

ROIC and Growth rate

Figure 64. ROIC evolution



Source: Own analysis and Company reports

Operating ROIC is expected to stabilize at around 10% in the years to come, with the company needing to invest capital as previously discussed, and value being created as we foresee the projects being developed to be profitable in the future. For what concerns the steady state growth rate, the value is assumed to be 1.25% in the future after the estimation period mainly driven by e-commerce margins and by returns from the most fast-growing countries in which the company has invested, specifically Brazil and Argentina. With respect to forecasts in nominal GDP growth in France, the company's main market, which is expected to be 2.05% in 2026[31], we opted for a more conservative value due to possible setbacks and changes in the industry overall scenario.

Financials and risk analysis

WACC

Figure 65. WACC summary

WACC

Target Debt/Equity ratio	0.54
Relevered Beta	0.72
Cost of equity	6.69%
Cost of debt	2.59%
After-tax WACC	**5.024%**

Source: Own analysis

To develop the DCF model with which we have arrived at the valuation of the company, we used the weighted average cost of capital. The latter represents the blended cost of capital considering all the sources from which it is developed, which include all types of equity, be it common or preferred shares, and debt. The cost of each type of source is then weighted according to the relative percentage compared to total capital. In Carrefour's case, the mix of capital sources comprised both equity and debt, so the cost of both was calculated separately.

In order to calculate the cost of equity, we decided to use Capital Asset Pricing. To begin with, we estimated the risk-free rate with the 10-year German government bond representing the theoretical return of an investment without risks in the European region. Therefore, we found the risk-free rate to be equal to 2.183% as of April 2023.

Figure 66. Unlevered Beta analysis

Companies	Unlevered Beta
Carrefour SA	0.3382
Tesco Plc	0.62
Ahold Delhaize	0.26
Casino Guichard	0.1
Sainsbury Plc	1.24
Industry average	0.5116

Source: Own analysis

To estimate the Beta of the company, the raw Beta was found by calculating the returns of Carrefour's stock starting from the weekly prices for the past five years with the returns of the MSCI World Index. Through the analysis of the slope of the returns, we obtained a first Beta of 0.47. The Beta was then unlevered by firstly assessing the target D/E ratio of the company through its historical average, which resulted in a 0.54 value, and then by applying the corporate tax rate, so as to arrive at a 0.34 Beta. Lastly, we adjusted the unlevered Beta by

[31] France: Gross domestic product | Statista

comparing it to the other unlevered Betas of the main competitors in the industry, and calculated the industry average, resulting in a final re-levered Beta of 0.72.

To estimate the market risk premium, we used the average value provided by Statista in 2022 for France, which amounted to 6.30%. As a result of the abovementioned parameters, we finally obtained a final cost of equity of 6.69%.

To calculate the cost of debt, two methods were used. The first method was the CAPM applied to debt, which entailed the same values for risk-free rate and market premium, but instead used a Beta for debt of 0.07 based on Kaplan estimates depending on credit spreads. In this case, we saw that Carrefour's rating has been Baa1 stable outlook for Moody's and BBB stable outlook for S&P Global as of 2022. Through the calculation of the CAPM, we arrived at a cost of debt of 2.59%. On the other hand, we also calculated the variable by dividing the net financial interest paid in 2022 with the total borrowings figure in 2021, which resulted in the exact same figure, with a cost of debt of 2.59%, which we hence used as the final estimate.

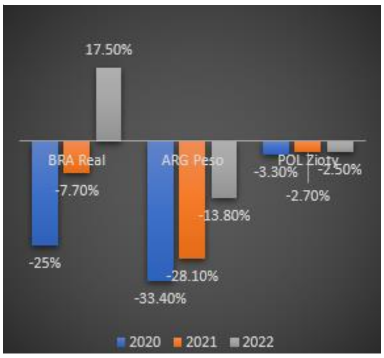
Finally, by maintaining the target D/E ratio of 0.54 for the foreseeable future, as there is no expectation for this figure to decrease in the short term, we have determined a **final WACC of 5.024%** for our valuation.

Sensitivity Analysis

In order to assess the risks of our analysis, it is crucial to see how the variation of WACC and the growth rate change the price estimation value. Through a sensitivity analysis, we have developed a vision of how a change in the weighted average cost of capital would impact the valuation. Such variable might be influenced by an eventual shift in the target D/E composition, in case the company decides to change its financing mix. When it comes to the cost of debt component of WACC, in a scenario where interest rates have increased consistently and in a macro scenario where central banks are targeting rising inflation, it might suffer from a significant change in both directions. The growth rate, which has been aligned with the average expected growth for French GDP, was accounted for in the analysis as different scenarios in the company's future projects and their successful implementation are key to the valuation process. From the analysis, it was possible to determine that for the same WACC value, higher growth rates lead to a higher target price. In particular, our estimates range from the lowest price of €18.18, to the highest value of €24.44.

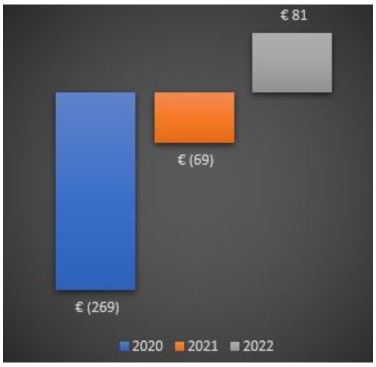
Sensitivity Analysis		g				
	20.09	0.75%	1%	1.25%	1.50%	1.75%
WACC	4.024%	21.13	21.75	22.49	23.37	24.44
	4.524%	20.11	20.57	21.11	21.73	22.46
	5.024%	19.32	19.68	20.09	20.55	21.08
	5.524%	18.69	18.98	19.3	19.66	20.06
	6.024%	18.18	18.42	18.67	18.96	19.28

Figure 67. Currency exchange effects on sales



Source: Own analysis and company reports

Figure 68. Brazilian Real currency effect



Source: Own analysis

Risk Analysis

Currency Risk

Carrefour's operations are active in several countries outside the Eurozone, which implies a foreign exchange risk depending on currency rates when consolidating financial statements. As can be seen in figure 44, the impact mainly concerns Brazil Real and Argentina Peso, whose impacts have widely ranged in the last years. In 2022 as depicted in figure 45, the ForEx effect was positive for on both gross sales (+2.6%) and on recurring operating income (+€81 million). However, both due to political instabilities and heavy inflationary scenarios in the two countries, it is possible that negative results such as those in 2020 and 2021 might occur again.

Brazil expansion risk

Carrefour has invested a consistent amount of capital for its expansion strategy in Brazil, with the acquisition of Groupo BIG being finalized in June 2022 for close to €1 billion.[32] The move's objective is to assert an ever more radicated position within the market, and expand to previously unexplored regions. It is however still uncertain whether the move will be successful and actually bring financial improvements to the LATAM division.

Technology implementation risk

As we have previously described, part of the successful outlook for Carrefour relies on the renovation of its operational structure, with the implementation of its digital technology within the entire value chain. Such scenario entails risks, as a delayed or inefficient application of the new systems might cause a loss of competitive advantage and a possible loss of market share in targeted markets.

[32] Carrefour reinforces its leading position in Brazil with the acquisition of Grupo BIG | Carrefour Group

Supply chain risk

The Chinese lockdown, the war in Ukraine, and the shortages in several sectors may be a problem when it comes to product availability, both for physical stores and for the e-commerce branch. Such an eventuality might be a cause for customer dissatisfaction and is a potential factor for market share loss in favour of other market participants. Moreover, issues might arise with suppliers, with major causes to be found in the steep inflation. It is key for the group to anticipate any possible shortages and in consumer demands, through precautionary buys.

Final recommendation

After having analysed the various elements influencing Carrefour's valuation for the future, and with a closing price of €18.3 as of May 16th, 2023, as well as an announced dividend of €0.56 per share in June 2023, our final recommendation is to BUY. The capital gain on the expected price of €20.09 in December would be of 9.27%, plus a 3% dividend yield per share, for a total return of 12.27%.

Appendix

Financial Statements

BALANCE SHEET

BALANCE SHEET	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Core Business																
Operating Cash	1,608	1,558	1,483	1,443	1,435	1,662	1,760	1,835	1,912	1,994	2,083	2,178	2,282	2,393	2,514	2,646
Inventories	6,690	6,135	5,867	5,326	5,858	6,893	7,034	7,333	7,639	7,969	8,323	8,705	9,117	9,563	10,047	10,571
Trade receivables	2,750	2,537	2,669	2,526	2,581	3,330	3,137	3,270	3,407	3,553	3,711	3,882	4,066	4,265	4,480	4,714
Consumer credit granted by the financial services companies - s	3,866	3,722	4,007	3,295	3,473	4,111	4,305	4,488	4,675	4,877	5,094	5,327	5,580	5,853	6,149	6,470
Tax receivables (short-term)	890	853	838	608	675	948	918	957	997	1,040	1,086	1,136	1,190	1,248	1,311	1,379
Employee advances	18	19	18	18	16	11	19	20	21	22	23	24	25	26	28	29
Other operating receivables	445	517	408	448	440	561	539	562	586	611	638	667	699	733	770	811
Prepaid expenses	344	329	299	304	476	419	417	435	453	472	493	516	540	567	596	627
Goodwill	7,977	7,983	7,976	8,034	7,995	8,778	8,778	8,778	8,778	8,778	8,778	8,778	8,778	8,778	8,778	8,778
Other intangible assets	1,364	1,461	1,452	1,325	1,333	1,499	1,618	1,687	1,757	1,833	1,914	2,002	2,097	2,200	2,311	2,431
Property and equipment	13,097	12,637	11,370	10,505	10,721	12,612	13,574	14,150	14,741	15,376	16,060	16,797	17,593	18,454	19,387	20,399
Right-of-use assets	0	0	5,050	4,506	4,361	4,190	3,547	3,697	3,852	4,018	4,196	4,389	4,597	4,822	5,066	5,330
Investments in companies via the equity method	1,355	1,374	1,246	1,172	1,256	1,197	1,459	1,521	1,584	1,653	1,726	1,805	1,891	1,983	2,084	2,193
Investments in non-consolidated companies	101	92	100	105	126	178	178	178	178	178	178	178	178	178	178	178
Other non-current assets	336	379	570	490	323	609	519	541	563	588	614	642	672	705	741	779
Consumer credit granted by the financial services companies - long term	2,455	2,486	2,283	1,933	1,821	1,867	2,463	2,567	2,675	2,790	2,914	3,048	3,192	3,348	3,517	3,701
Deferred tax assets	635	724	824	678	630	475	766	798	832	867	906	948	993	1,041	1,094	1,151
Total Core Assets	43,931	42,806	46,460	42,716	43,520	49,340	51,031	52,818	54,650	56,618	58,737	61,022	63,489	66,158	69,049	72,186
Suppliers and other creditors	15,082	14,161	13,646	12,560	13,072	14,393	15,886	16,561	17,253	17,996	18,796	19,659	20,590	21,598	22,689	23,874
Consumer credit financing - short term	2,817	3,582	3,712	3,067	2,868	3,592	3,767	3,927	4,091	4,267	4,457	4,662	4,883	5,122	5,380	5,661
Lease commitments ST	0	0	941	936	995	955	749	780	813	848	886	926	970	1,018	1,069	1,125
Tax Payables - less than one year	1,282	1,142	1,095	1,039	1,108	1,182	1,312	1,368	1,425	1,486	1,552	1,624	1,701	1,784	1,874	1,972
Other current payables	2,813	2,938	2,649	2,617	2,765	2,943	3,208	3,344	3,484	3,634	3,795	3,969	4,157	4,361	4,581	4,821
Consumer credit financing - long term	2,661	1,932	1,817	1,506	1,573	1,550	2,110	2,200	2,292	2,391	2,497	2,611	2,735	2,869	3,014	3,171
Lease commitments LT	0	0	4,297	3,787	3,602	3,574	2,988	3,115	3,245	3,384	3,535	3,697	3,872	4,062	4,267	4,490
Tax Payables - over one year	0	0	335	214	193	85	164	171	178	186	194	203	213	223	235	247
Provisions: disputes with current and former employees	166	143	147	113	109	628	242	253	263	275	287	300	314	330	346	364
Provisions: legal disputes	154	149	150	150	232	401	235	245	255	266	278	290	304	319	335	353
Deferred Tax liabilities	489	541	655	467	374	364	556	580	604	630	658	689	721	756	795	836
Total Core Liabilities	25,464	24,588	29,444	26,456	26,891	29,667	31,217	32,543	33,902	35,363	36,935	38,630	40,461	42,441	44,586	46,914
Invested Capital in Core with Cash	18,467	18,218	17,016	16,260	16,629	19,673	19,813	20,275	20,747	21,255	21,802	22,392	23,028	23,717	24,463	25,273
Net Working Capital (Current Op. Ass. - Current Op. Liab.)	(5,383)	(6,153)	(6,454)	(6,251)	(5,854)	(5,130)	(6,791)	(7,080)	(7,376)	(7,693)	(8,035)	(8,404)	(8,802)	(9,233)	(9,700)	(10,206)

Non Core Business																
Investment Property	410	389	312	259	291	279	371	387	403	421	439	459	481	505	530	558
Other non-current financial assets	1,266	1,183	1,407	1,107	1,026	984	1,163	1,220	1,278	1,341	1,408	1,481	1,560	1,645	1,737	1,837
Assets held for sale	16	46	37	123	20	1,641	48	48	48	48	48	48	48	48	48	48
Proceeds receivable from disposals of non-current assets	44	22	13	19	11	34	27	28	29	30	32	33	35	37	38	40
Total Non-Core Assets	1,736	1,640	1,769	1,508	1,348	2,938	1,609	1,683	1,759	1,840	1,928	2,022	2,124	2,234	2,354	2,484
Other provisions	2,683	3,229	2,998	2,407	2,114	2,945	3,132	3,265	3,402	3,548	3,706	3,876	4,060	4,259	4,474	4,707
Liabilities related to assets held for sale	11	0	49	39	0	1,196	0	0	0	0	0	0	0	0	0	0
Total Non-Core Liabilities	2,694	3,229	3,047	2,446	2,114	4,141	3,132	3,265	3,402	3,548	3,706	3,876	4,060	4,259	4,474	4,707
Invested Capital in Non-Core Business	(958)	(1,589)	(1,278)	(938)	(766)	(1,203)	(1,523)	(1,582)	(1,643)	(1,708)	(1,778)	(1,854)	(1,936)	(2,024)	(2,120)	(2,224)
Financing																
Excess of cash	1,985	2,742	2,983	2,996	2,268	3,554	3,456	3,381	3,304	3,222	3,133	3,038	2,934	2,823	2,702	2,570
Other current financial assets	161	190	252	368	532	720	426	444	462	482	504	527	552	579	608	640
Total Financial Assets	2,146	2,932	3,235	3,364	2,800	4,274	3,881	3,825	3,766	3,704	3,637	3,564	3,486	3,401	3,310	3,210
Total borrowings	7,497	8,275	7,300	7,389	6,833	9,558	8,597	8,786	8,979	9,188	9,412	9,653	9,914	10,196	10,502	10,833
Total Financial Liabilities	7,497	8,275	7,300	7,389	6,833	9,558	8,597	8,786	8,979	9,188	9,412	9,653	9,914	10,196	10,502	10,833
Net Debt	3,743	3,785	2,582	2,582	2,598	3,622	2,955	3,126	3,301	3,489	3,692	3,910	4,146	4,401	4,678	4,978
Net Financial Assets	-5,351	-5,343	-4,065	-4,025	-4,033	-5,284	-4,716	-4,961	-5,213	-5,484	-5,775	-6,089	-6,428	-6,795	-7,192	-7,623
Non-controlling interest (NCI) / Minority Interests	2,099	2,117	1,736	1,502	1,579	2,042	2,105	2,129	2,154	2,180	2,209	2,240	2,274	2,310	2,349	2,392
Common Shareholders' Equity	10,059	9,169	9,937	9,795	10,251	11,144	11,470	11,602	11,738	11,883	12,040	12,209	12,391	12,588	12,802	13,034
Total Shareholder Equity	12,158	11,286	11,673	11,297	11,830	13,186	13,575	13,731	13,891	14,064	14,249	14,449	14,665	14,898	15,151	15,426
check	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
check assets	47,813	47,378	51,464	47,588	47,668	56,552	56,521	58,325	60,175	62,162	64,302	66,608	69,099	71,793	74,712	77,880
check liabilities	47,813	47,378	51,464	47,588	47,668	56,552	56,521	58,325	60,175	62,162	64,302	66,608	69,099	71,793	74,712	77,880
Debt to book ratio	42.8%	49.8%	46.4%	48.2%	43.1%	51.7%	47.0%	47.0%	47.0%	47.0%	47.0%	47.0%	47.0%	47.0%	47.0%	47.0%
Total invested capital	17,509	16,629	15,738	15,322	15,863	18,470	18,290	18,692	19,104	19,547	20,024	20,538	21,092	21,693	22,343	23,049
Equity attributable to shareholders	13,766	12,844	13,156	12,740	13,265	14,848	15,335	15,566	15,803	16,058	16,332	16,627	16,946	17,291	17,665	18,071

INCOME STATEMENT

INCOME STATEMENT	Historical						Forecasted									
(in € millions)	2017A	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net Sales	78,315	76,000	72,397	70,719	70,462	81,385	86,281	89,994	93,798	97,886	102,288	107,034	112,161	117,707	123,719	130,245
Loyalty program costs	(642)	(740)	(746)	(752)	(792)	(842)	(863)	(900)	(938)	(979)	(1,023)	(1,070)	(1,122)	(1,177)	(1,237)	(1,302)
Franchise and business lease fees	258	258	280	329	365	402	385	711	729	748	768	790	812	837	863	890
Other operational revenue	849	797	533	500	439	567	543	190	194	199	205	211	217	223	230	237
Cost of sales	(62,311)	(60,850)	(58,051)	(56,705)	(56,865)	(66,776)	(70,330)	(73,271)	(76,236)	(79,421)	(82,848)	(86,541)	(90,527)	(94,837)	(99,505)	#######
SG&A costs	(14,410)	(13,668)	(11,906)	(11,232)	(10,837)	(11,958)	(12,411)	(13,142)	(14,001)	(14,783)	(15,728)	(16,743)	(17,837)	(19,014)	(20,282)	(21,648)
Depreciation and amortisation expense	(1,536)	(1,494)	(2,086)	(2,040)	(1,864)	(1,978)	(2,244)	(2,339)	(2,437)	(2,542)	(2,655)	(2,777)	(2,908)	(3,051)	(3,205)	(3,372)
Restructuring costs	(279)	(727)	(549)	(93)	(383)	(13)	0	0	0	0	0	0	0	0	0	0
Core Results before taxes	**244**	**(424)**	**(128)**	**726**	**525**	**787**	**1,361**	**1,242**	**1,109**	**1,109**	**1,007**	**903**	**796**	**688**	**582**	**481**
core taxes	(84)	146	44	(232)	(149)	(203)	-352	-321	-287	-286	-260	-233	-206	-178	-150	-124
% Statutory tax rate	*34.43%*	*34.43%*	*34.43%*	*32.02%*	*28.41%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*	*25.83%*
Tax Adjustments	(223)	(26)	36	(54)	3	14	-56	-51	-46	-46	-42	-37	-33	-28	-24	-20
NOPLAT	**(63)**	**(304)**	**(48)**	**440**	**379**	**598**	**953**	**870**	**777**	**776**	**706**	**632**	**557**	**482**	**408**	**337**
Financing fees and commissions	1,384	1,383	1,488	1,196	1,158	1,404	1,345	1,377	1,412	1,448	1,487	1,529	1,573	1,621	1,671	1,724
Rental revenue	228	218	190	158	129	173	166	367	376	386	397	408	420	432	446	460
Net income / (loss) from equity-accounted companies	4	14	2	13	12	50	50	50	50	50	50	50	50	50	50	50
Gains and losses on disposal of assets	22	57	28	19	271	212	102	102	102	102	102	102	102	102	102	102
Other non-recurring income and expenses	(13)	(289)	(308)	(105)	(40)	(16)	0	0	0	0	0	0	0	0	0	0
Asset impairments and write offs	(891)	(202)	(200)	(295)	(215)	(147)	(212)	(212)	(212)	(212)	(212)	(212)	(212)	(212)	(212)	(212)
Non Core Result before taxes	**734**	**1,181**	**1,200**	**986**	**1,315**	**1,676**	**1,450**	**1,684**	**1,728**	**1,774**	**1,824**	**1,876**	**1,933**	**1,992**	**2,056**	**2,124**
Non Core taxes	(253)	(407)	(413)	(316)	(374)	(433)	-375	-435	-446	-458	-471	-485	-499	-515	-531	-549
Statutory Tax Rate	*34.4%*	*34.4%*	*34.4%*	*32.0%*	*28.4%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*	*25.8%*
Tax Adjustments	(211)	(342)	(292)	(30)	82	88	(76)	(88)	(91)	(93)	(96)	(99)	(101)	(105)	(108)	(112)
Other comprehensive income / (loss) after tax	(482)	(404)	(321)	(1,061)	179	595	0	0	0	0	0	0	0	0	0	0
NON CORE RESULT AFTER TAXES	(212)	28	174	(421)	1,202	1,926	**1000**	**1161**	**1191**	**1223**	**1257**	**1293**	**1332**	**1373**	**1417**	**1464**
Finance costs and other financial income and expenses, net	(445)	(262)	(352)	(334)	(270)	(490)	(223)	(228)	(233)	(238)	(244)	(250)	(257)	(264)	(272)	(281)
Financing Result before Taxes	**(445)**	**(262)**	**(352)**	**(334)**	**(270)**	**(490)**	**(223)**	**(228)**	**(233)**	**(238)**	**(244)**	**(250)**	**(257)**	**(264)**	**(272)**	**(281)**
Tax Shield	153	90	121	107	77	127	58	59	60	62	63	65	66	68	70	73
Statutory Tax Rate	*34.43%*	*34.43%*	*34.43%*	*32.02%*	*28.41%*	*25.83%*	25.83%	25.83%	25.83%	25.83%	25.83%	25.83%	25.83%	25.83%	25.83%	25.83%
FINANCING RESULT	**(292)**	**(172)**	**(231)**	**(227)**	**(193)**	**(363)**	**(165)**	**(169)**	**(173)**	**(177)**	**(181)**	**(186)**	**(191)**	**(196)**	**(202)**	**(208)**
Net income / (loss) from discontinued operations	(277)	(301)	1,092	(22)	92	1	0	0	0	0	0	0	0	0	0	0
Attributable to NCI	45	101	134	(145)	256	346	346	346	346	346	346	346	346	346	346	346
TOTAL COMPREHENSIVE INCOME - Group Share	**(889)**	**(849)**	**853**	**(85)**	**1,224**	**1,815**	**1441**	**1516**	**1449**	**1477**	**1436**	**1394**	**1353**	**1313**	**1277**	**1246**
check	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE										

FCF

		2023E	2024E	2025E	2026E	2027E
		1	2	3	4	5
Core Result		972	889	797	797	727
Change in Core Invested Capital		141	461	473	508	547
FCF		**831**	**428**	**324**	**289**	**181**
Value of Core operations	**6,484**	791	388	280	238	4,787

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield)

	between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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