NOVA SCHOOL OF BUSINESS & ECONOMICS

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

Whirlpool and the new meaning of home: smart tech and home office

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Abstract

In this paper a detailed valuation of Whirlpool's share price as of 31-Dec-2022 can be found, analysis performed through two different methods. The main approach is the Discounted Cash-Flow and then, a Multiples Valuation was performed to support the previous conclusions. Whirlpool is a cyclical company that is directed related to the economic state at every moment and its performance follows the trends of the Household Appliances industry. Covid-19 or other unexpected event can easily impact the company's valuation, since the share price is rather sensitive to fluctuations in the WACC and in the steady-state growth rate. According to this valuation's findings, the recommendation is to Hold.

Keywords

Whirlpool
Household Appliances
Digitalization
Home-Office

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This report is part of the … report (annexed) and should be read has an integral part of it.

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Value Drivers and Forecasts

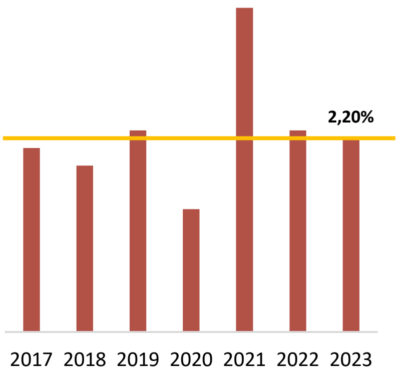
In order to be able to determine the organization's value, it is relevant to understand what drives the key financials, mainly its revenues. Furthermore, after incorporating these financials to get to the future annual reports, we will proceed to the Discounted-Cash-Flow Analysis, with which, finally, a stock price of Whirlpool can be estimated, as of the year ending 2022.

Revenues Forecast

Despite what happened in the last couple of peculiar years, Whirlpool Corporation was able to keep its revenues somewhat stable across its four main regions, which are North America, EMEA, Latin America and Asia, showing small decreases compared to what happened in other industries. Currently, let us recall that 58% of Whirlpool's revenues come from North America, followed by 22% from EMEA, 13% from Latin America and only 7% coming from Asia. As previously stated, Whirlpool operates in the household appliances industry and its sales fluctuate accordingly with the fluctuations of this market.

- Inflation

Exhibit 1: Inflation rate in the U.S. (2017-2023)



Source: The balance: "*US Inflation rate by year from 1929 to 2023*"

Firstly, it is important to recognize that revenues in this industry can be assumed as the multiplication of the number of products sold by the average price per product, in all geographical areas. Even though there are different product categories, which imply different prices for each product, we will consider an average value in our analysis, assuming all of them grow at the same inflation rate. Furthermore, even though each region has its currency (or even multiple ones), Whirlpool is headquartered in the U.S. and all revenues are reported in the annual report in USD (U.S. dollars). This way, we considered the estimated inflation rate for this currency for the upcoming years and applied it to the different areas.

As seen in **exhibit 1**, the U.S. inflation rate is expected to reach a value of 2,2%[1] per year in 2023, which we then considered to be the value in which this rate stabilizes, after the economy suffered the pandemic crisis followed by the peak in the inflation rate we are facing this year (2021), as also presented in the exhibit. This particular value is considered a moderate inflation of prices in the modern economy and slightly higher than what happened in the last two years due to the

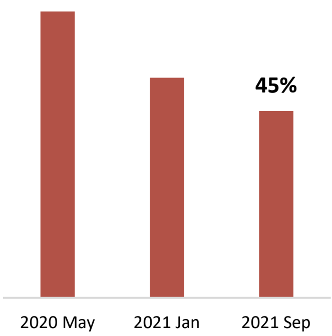
[1] https://www.thebalance.com/u-s-inflation-rate-history-by-year-and-forecast-3306093

pandemic. Yet, central banks try to prevent severe rates, once it can drastically influence the purchasing power and consequently harm countries' GDP.

Overall, the average price per product driver is different across the different geographical areas since most products sold are different and so are their prices, when considered at the local currency. This driver grows at the same pace as the previous mentioned inflation rate, year by year, across the world. Moreover, when it comes to the number of products sold, the two main factors influencing this driver are – the real GDP annual growth rate and the percentage of the workforce working from home at least once a week. These drivers do vary across the regions and therefore its forecasts are distinct.

- North America

Exhibit 2: Percentage of US work force working at home

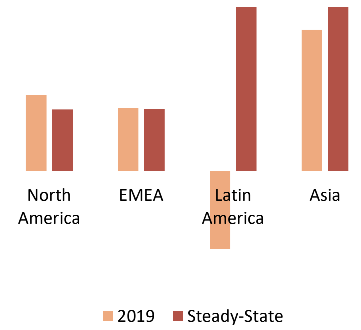


Source: Gallup – *"Remote Work Persisting and Trending Permanent"*

As for the North America region, the U.S. and Canada show a similar behaviour over the years and therefore we assumed the U.S.' values as a proxy for the whole region. According to the WorldBank, the GDP growth rate was negative in 2020 due to the Covid-19, but it is expected to recover over the next years and grow at a constant rate of 1.70% per annum in the long-run, as shown in **exhibit 3**, once developed economies do not present the same opportunities for GDP growth as developing ones do. For the same reason, it would not be reasonable to assume that the quantity sold each year would increase at the same pace as the GDP but, accounting for the e-commerce trend and the effect it will have for Whirlpool, we assumed that it would increase 20% slower than the GDP growth, each year.

As for the home office driver, since the beginning of the pandemic the percentage of the workforce working from home at least once a week in the U.S. increased about 31% and, now that everything is expected to go back to normal, studies expect only 7% of this increase to come back to full time in-person work. In **exhibit 2**, one can see the actual difference between the values during the pandemic (69% in 2020), to the adaptation to the new normal nowadays, which is around 45%, a value that we expect to continue for the next years to come. This way, we assumed for the purposes of our model that one fifth (20%) of the annual increase in home office percentage would be translated into the need of getting a new and more comfortable house, better equipped and easier to use, considering the extra time that was now spent in there and the necessity of having a more efficient (and smart) home. This way, this driver contributes positively for the number of products sold increase in 2021 and slightly negatively for 2022. Thereafter, this driver would have no influence in the household appliances' sales.

Exhibit 3: GDP Growth Rate 2019 vs. Steady State



Source: Statista and Own Assumptions

Overall, the revenues verified in this region will continue being the ones with the highest share of the firm. It is relevant to remember the key message behind

Whirlpool: “Earn trust and create demand for our brands”. Whirlpool is a company that has grown especially in the United States, due to the loyalty, product of the quality of its services. With the agreements made with VTEX, among other efforts the company made to increase its online presence, Whirlpool is expected to continue thriving in customer satisfaction, therefore it should have no problem keep or even growing its percentage of customer loyalty. This along with the constant efforts of sustainability and innovation, applying smart tech to its products, is the reason why we expect such a growth in North America’s revenues.

- EMEA

In the EMEA region, an European Union proxy was considered since there are more European countries weighting for the sales revenues in this geography. In **exhibit 25**, it is possible to compare the actual difference between the pre-COVID era with the expected long run effect. The year of 2019 was used since it is the most recent stable year, whereas 2020 is one of a kind, an outlier once compared with the rest. In 2020 the GDP dropped almost 7%, whereas in 2019 GDP growth registered was 1.74%. As seen in **exhibit 25**, this rate is expected to recover from the devastating 2020 over the next 3 years, stabilizing around 2023 to a 1.72% annual growth rate thereafter. Furthermore, Whirlpool is planning to increase its online presence, in particular, its own website, available in more geographies, which will allow for the growth of customers, as it is this segment is such a trend, and, therefore, will have a positive effect throughout the next years.

As for the home office influence, it increased from 24% to 50% and it is expected to remain this way in the long run, since this region wants to keep the increase that the pandemic brought. Again, one fifth of this increase will also raise the number of products sold in this region.

- Latin America

In the Latin American region, GDP dropped more than in the other ones, demonstrating a decrease of 17% due to the covid-19 effects. This way, and considering these are mainly developing countries, according to Statista, it is expected that the GDP in this area will recover over the next 4 to 5 years and then stabilize with a growth of 5.4% per annum in the long run, increasing the purchasing power and income available to spend on this industry. As **exhibit 25** shows, this geography is the one with the biggest difference between the GDP growth rate pre-pandemic and in the steady state, which presents considerable growth opportunities. These opportunities arise from the trends in this industry, in particular the need to improve quality of life at home, brough by the pandemic, as well as the growing middle class that is arising in this region, allowing for higher purchasing power for durable goods, such as the ones Whirlpool provides.

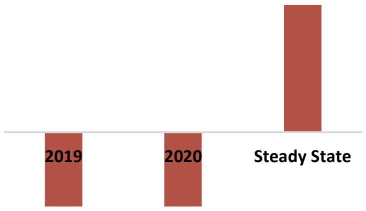
As for the home office driver, in this area it has little influence since it was already increasing before the pandemic. This aimed to reduce pollution and was also due to the fact that more young workers were entering the working world, revolutionizing it.

- Asia

Lastly, GDP in Asia did not drop that much due to the pandemic effects, but it is expected to increase considerably over the next years and stabilize at a growth rate of 4.60%, as shown in **exhibit 3**. This happens because of the emerging markets, which offer huge potential for growth and investment opportunities, but are also extremely volatile.

In terms of the home office, this driver is not considered to have any particular influence in the revenues of Whirlpool since, unlike the U.S. and the EU, Asia wants to come back to typical office environment. In fact, the growth in revenues in this region is mostly due to two factors: the rapid change in the key countries to smart cities, and the growing middle class expected to continue in the upcoming years. These individuals will therefore be looking for with the extra disposable income, to constantly improve their tech at home, as living in a city with everything connected through digitalization, it is natural to feel that you need to include that in your personal space. So, the extra income allows for such a need to be accomplished. The main threat is that this region is the one with the more significant competitors for Whirlpool, so it is important to step it up in innovation and try to be a pioneer in new smart tech developments.

Exhibit 4: Whirlpool annual growth of Net Sales: current and forecasted steady state



Source: Own Calculations

Overall, **total net sales** are expected to increase continuously. In the **exhibit 4**, it is possible to better compare this evolution in terms of annual growth. In 2019, Whirlpool verified an annual sales growth of -2.94%, while in 2020 this value was -4.72%. According to all our previous conclusions made based on the current and expected trends, and expectations of the economic growth of each region, according to statistics, it expected that the steady state annual growth rate assumes the value of **4.68%**.

Expenses Forecast

When it comes to the overall costs, as there is not sufficient information provided by the organization in its annual report for it to be divided into segments, as performed in the Revenues Forecast, this segmentation was not performed, and the values were forecasted at their full value.

In terms of the core operations of Whirlpool Corporation, the two accounts that are clearly the most relevant are: Cost of Sales and Selling, General and Administrative, presented in detail below.

- ### Cost of Goods Sold

The Cost of Goods Sold are dependent of numerous factors. The three main factors are: the number of products sold, the number of manufacturing locations, and lastly, the number of employees hired by the organization. Starting with the number of products sold, which are directly connected and explained by the new relevant trends in the market, mentioned above also in the Revenue Forecast chapter, which are among others, inflation rate, GDP growth rate, and the key changes expected to see in the market, such as home office, ecommerce, among others. With regards to the number of manufacturing locations, Whirlpool Corporation has been decreasing these over the past years as in a way to save costs for the firm. Yet, as the demand for major appliances is expected to increase in the next years, as people's homes gain more importance, the firm is forecasted to maintain the number of manufacturing locations to face the future increase in worldwide demand. In addition, we do not find the need for it to increase due to the expected increase in technology advances, that make it possible for the equipment to be more efficient and produce even more. The last factor that needs to be mentioned is the number of employees of Whirlpool. This factor is expected to increase as demand for products increases. An assumption was made, that each year the number of employees is going to have an expected growth of 1.5% compared to the previous year. By means of this, the number of employees does not increase in the same proportion as the revenues once the future equipment is expected to be more and more efficient, leading to the less need for employees to operate them. In conclusion, this increase in sales does not require the COGS to increase in the same way revenues do so.

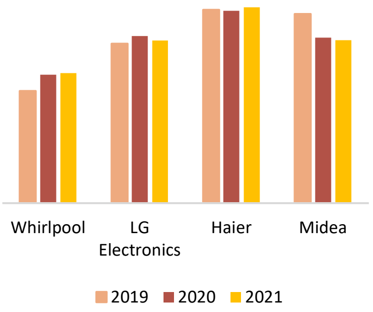
Exhibit 5: Cost of Goods Sold (2020-2026)

	2020	2021	2022	2023	2024	2025	2026
COGS	$15606	$17981	$19206	$20203	$21205	$22231	$23312
#products sold	63.87	70.68	73.63	75.64	77.52	79.37	81.27
#manufactoring locations	35	35	35	35	35	35	35
#employees	78000	79170	80358	81563	82786	84028	85289

Source: *Annual Report and Own Calculations*

By observing the **exhibit 5**, one can better perceive the change in Cost of Goods Sold mentioned just above, which reflects also an increase in efficiency, something that Whirlpool is constantly searching for, both for the final products and for those who allow for the production, both in terms of costs and in terms of reducing the pollution associated with production.

Exhibit 6: Gross Margin across main competitors



Source: *Bloomberg and Own Calculations*

Consequently, the forces of the trends as well as the economy's recovery will lead to a consequent increase in the forecasted Gross Margin. In the next exhibit, it is possible to have a broader view of this account of Whirlpool once compared to its main competitors. As provided in **exhibit 6**, it is possible to conclude that Whirlpool is not the best when it comes to Gross Margin. Yet, taking into account that it is the only company outside the Asia region that stands in the top four, shows how competitive and how much effort they make to reach such a value, since in this region, labour is known by being way cheaper and so are materials, providing the others with a great advantage for this metric. In addition, as mentioned, this metric is expected to increase due to great efforts made by the firm.

- Selling, General and Administrative

The second core cost includes all other operating expenses that occur on a daily basis, such as advertising or salaries. With the expansion of the number of consumers across the globe, the continuous e-commerce customers that live by reviews, and good advertising campaigns, there is more than ever a huge need for an increase in efforts to attract and reach consumers, to market their products so that they will buy more of Whirlpool and less of what else is on the market. Therefore, an assumption was made, that due to extra costs such as marketing expenses, advertising or distribution costs to get a better competitive advantage faced to others, these expenses would increase to 12% per year for the subsequent periods to come.

- Non-core Expenses

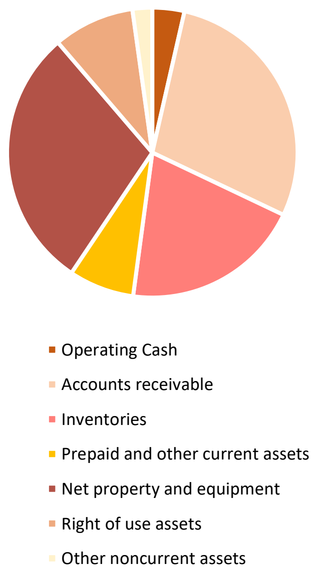
In terms of the non-core part of the business, meaning expenses that are not part of the normal course of the business, it is relevant to point out the following two: Restructuring costs and Intangible Amortization. Whirlpool has been focusing on global cost reduction efforts. Indeed, Whirlpool hasn't been yet able to cut all costs associated with restructuring, yet it is expected that in 2021, these will be cut from \$288 (2020) to \$100 in the next year (2021), stated in the annual report of the organization. Furthermore, these costs are expected to be eliminated completely, therefore the forecast from 2022 onwards is that these costs fade completely.

In terms of intangible amortization, this was also considered as a non-core expense, as it does not occur in the normal course of the business. Therefore, assuming a straight-line method, we assumed this value to be forecasted as constant and equal to the one provided in 2020.

- Statutory Taxes

The current statutory tax rate[2] applied in the U.S. is 21% and has been over the past years, yet it is forecasted to increase to 26% in the long run. This increase is most likely to harm the U.S. economic competitiveness and increase the cost of investment in America, which will bring a huge restriction. Yet, according to Reuters, President Biden's plan is to increase the corporate tax rate from 21% to 28%, actually, believing that this increase was aimed and necessary. In addition, according to thehill.com[3], the democrats have their eye on an expected increase, which we considered to be more reasonable and less drastic, to 26%, the value used for the valuation.

Exhibit 7: Core Assets Distribution



Source: *Annual Report*

CAPEX and Core Assets

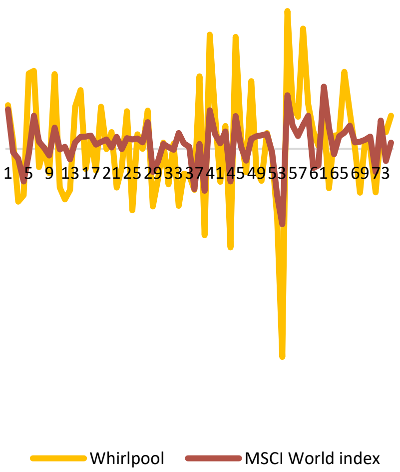
As for the Core Invested Capital, Whirlpool is expected to increase its investments, especially in the Capex section, since production will be more efficient due to technology, and this presumes an increase in the company's assets. **Exhibit 7** shows each core asset's contribution for the total core invested capital, pointing out the need for PP&E, inventories, and accounts receivable when operating in this industry, captions that will keep up with the industry trends and sales increase. As for the non-core invested capital, most captions are assumed to remain constant to what was verified in 2020. The exceptions are Pension Benefits and Postretirement benefits, where an average of the past three years was used to get the forecasted values, which then remained constant throughout the years. The reasoning behind this decision lies on the fact that, due to the pandemic, Whirlpool had its focus on constant cost reductions, preparing for the worst.

[2] https://www.reuters.com/world/us/even-after-biden-tax-hike-us-firms-would-pay-less-than-foreign-rivals-2021-06-22/
[3] https://thehill.com/policy/finance/571913-house-democrats-eye-256-percent-corporate-tax-rate

Return on Invested Capital (ROIC)

Regarding the Return on Invested Capital (ROIC), the method used to calculate this measure of profitability was to divide the total core result of the current year that is being analyzed by the total core invested capital of the preceding year. When calculated from the forecasted values, this ratio reaches 19% in 2031 and reaches what we expect to be a steady state. Comparing this future estimate to the values we found nowadays, there is an accentuated decrease in 2022, which is the translation of the covid-19 impact and the incorporation of the trends that it originated. Yet, it is still a value above the worldwide average and stands out in the industry in question.

Exhibit 8: Whirlpool vs. MSCI World Index Returns



Source: *Bloomberg*

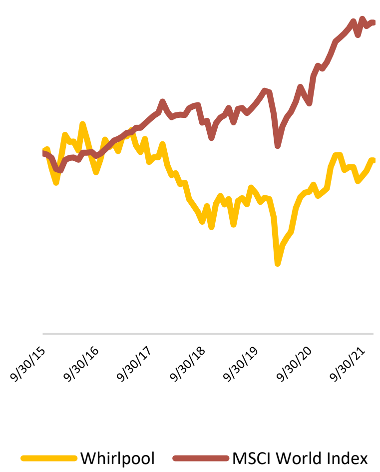
Valuation

The Stock

Whirlpool's stock is listed in the New York Stock Exchange (NYSE) and it has been there for over 40 years. For the purpose of this valuation, the MSCI World Index was considered as a proxy for the market performance, as it is a well-diversified market capitalization weighted stock that includes over 1500 companies around the world, measuring the equity performance in both emerging and developed economies, representing a broad cross-section of global markets. Considering Whirlpool sells in distinct geographies and that most of its main peers and comparable companies are from outside the U.S., this index was therefore considered to be the most adequate.

Furthermore, in **exhibit 8** one can observe the monthly returns over the last 5 years for both Whirlpool Corp Index and MSCI World Index. It is therefore possible to conclude that, even though the company's stock is more volatile, its variations are in line with the market's proxy variations, which supports the assumption made when choosing the MSCI World Index. **Exhibit 9** shows the cumulative returns for both indexes if an investor placed $100 on each on 30/09/2015 and kept these positions open until today. Again, they do move in the same way, but Whirlpool's movements are more drastic, and it led to an accentuated decrease of returns from 2016 to 2018, weighting for the major difference we see in nowadays' returns.

Exhibit 9: Cumulative Value of $100 Investment on 30/09/2015



Source: *Bloomberg and Own Calculations*

In order to perform an accurate valuation of our company, the Discounted Cash Flow (DCF) approach was used, achieved through the WACC method. In this sense, for the WACC calculation an estimation of the cost of equity and cost of debt of the company was performed.

Comparable Companies

There were six main companies that stood out when choosing the main peers for our analysis were LG Electronics, Arçelik, Electrolux, Midea, Hisense Smart Home and Haier. Nevertheless, not all of them have household appliances as their main core business, like Whirlpool does. Due to this, even though the business model may be similar, and the industry the same, we are comparing companies from a different scale. In **exhibit 10** are evidenced the main characteristics of these companies, showing the variation across the market capitalizations and the Betas. There is no company within the U.S. whose core business is exclusively household appliances that are significant enough to be comparable, which led to this need of using bigger and overseas companies (mostly in Europe and Asia - China, Sweden, Germany, Japan specifically) that are more accurate competitors to Whirlpool.

Exhibit 10: Comparable companies' key information

	Market Cap	D/E	Beta Levered	Beta Unlevered
WHR	**$ 14,666.40**	**0.33**	**1.809**	**1.432**
LG	$ 17,915.40	0.34	1.138	0.896
Arçelik	$ 2,376.40	0.06	0.818	0.711
Electrolux	$ 7,191.40	0.06	1.396	1.329
Midea	$ 77,200.60	-0.03	1.018	1.042
Hisense	$ 2,425.00	-0.32	1.282	1.723
Haier	$ 41,632.00	-0.01	1.103	1.110

Source: *Bloomberg and Own Calculations*

WACC (Weighted Average Cost of Capital)

Finally, taking into account Whirlpool's current market capitalization of $14.666 million and its current Net Debt of $4,756, the calculation of the WACC delivered a value of 9.23%.

▪ Cost of Equity

Firstly, the Capital Asset Pricing Model (CAPM) was used to estimate the cost of equity of Whirlpool. The current risk-free (2021) was considered as the current yield of a U.S. 10Y government bond and its observed value is 1.46%, while the Market Risk Premium[4] of the United States is 5.5%, according to Statista. Hence, the only component left for own calculation was the Levered Beta.

A regression of the last 5 years monthly returns of Whirlpool's stock was ran against the MSCI World Index monthly returns for the same period. The outcome

[4] https://www.statista.com/statistics/664840/average-market-risk-premium-usa/

of this regression was a Beta of 1.809, which seems a reasonable value. However, the 95% confidence interval presents a wide window, which means that this conclusion may not be that accurate. The six Whirlpool's selected peers were considered in order to perform the same analysis and get a better picture of what really happens in this industry.

This way, **exhibit 10** presents the levered betas obtained from the monthly 5 years regressions and the unlevered betas for each, considering the corresponding capital structure. From our regressions, Whirlpool presents the highest levered beta. This has multiple explanations, being one the fact that by only being strong in one industry its systematic risk is higher, which does not happen for the competitors that have household appliances as a smaller part of their revenues. This way, since the peers do not operate only in this industry and are all from outside the U.S., the performed regression presents an R-squared higher than 50%, Whirlpool's beta was kept equal to the one obtained from the regression. The levered beta measures the sensitivity of a public security's performance in relation to the overall market, and, from **exhibit 8**, one can see that Whirlpool is considerably more volatile than the market.

Furthermore, according to a study made by Pacra, the industry in which Whirlpool is inserted in has a moderate level of leverage, with a level around 39%. In fact, Whirlpool's current Debt-to-Equity ratio is 32%, which goes in line with what was just mentioned. This considered, we will keep a target D/E ratio equal to the current one, which makes the re-levered beta equal to the 1.809 previously obtained. As **exhibit 11** shows, the obtained cost of equity was 11.41%.

Exhibit 11: Cost of Capital calculations

Levered Beta	1.809
Current risk-free rate	1.46%
Market Risk Premium (U.S.)	5.50%
Cost of Capital	**11.41%**

Source: *Own Calculations*

- Cost of Debt

In order to estimate the cost of debt, a recently issued bond by Whirlpool with 10 years of maturity (2021/31) was considered, with semiannual coupon payments of 1.20%. As seen in **exhibit 12**, this bond has a YTM of 3.57%.

Exhibit 12: Bond issued by Whirlpool information

Price	$ 99.82
Issue Date	24/04/2021
Semiannual Coupons	1.20%
Maturity	15/05/2031
Future Value	$ 100
YTM	**3.57%**

Source: *Markets Insider*

Since Whirlpool has a credit rating of BBB, according to S&P, we retrieved the probability of default value from the credit rating company website, which is 1.02%. Furthermore, loss given default is assumed to be 40%[5] for the consumer discretionary industry (according to S&P) and this industry is considered a rather fitting one for Whirlpool's operations. Overall, this led to a cost of debt estimation of 3.16% (**exhibit 13**).

Exhibit 13: Cost of Debt calculations

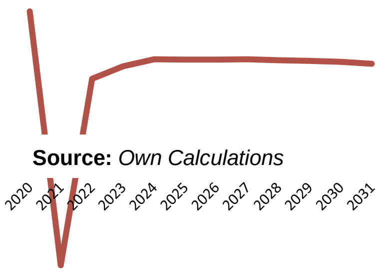
YTM	3.57%
Probability of Default	1.02%
Loss Given Default	40.00%
Cost of Debt	**11.41%**

Source: S&P Rating and *Own Calculations*

[5] https://www.spglobal.com/marketintelligence/en/news-insights/blog/corporate-credit-risk-trends-in-developing-markets-a-loss-given-default-lgd-perspective

Free Cash Flow Model

Exhibit 14: Expected Free Cash Flow



Source: *Own Calculations*

Source: *Own Calculations*

The final value of Whirlpool Corporation was calculated through the DCF method, executed by discounting the forecasted FCF at the WACC. As previously stated, Whirlpool targets a specific capital structure, in this case a D/E ratio of 0.32. Therefore, it was concluded that the Discounted Cash Flows method was the most appropriate for this concrete case.

As presented in **exhibit 14**, for the forecasted period ending in 2031, the forecasted FCF demonstrates a rather stable trend for the upcoming years. It suffered a huge drop from 2020 to 2021 due to the pandemic, yet it is expected to recover faster than most companies for the next 2 years, considering the trends that drive this industry. Since the FCF is the difference between the Total Core Result and the Change in Core Invested Capital, the shape of the graph is explained by the increase in revenues and strong working capital management, as well as a significant investment in CAPEX, all in a short-term period. For the long-run, Whirlpool shows a considerably stable forecasted FCF.

Terminal Value

Exhibit 15: Weighted Average of GDP Growth

	GDP	Weight
North America	1.70%	57.18%
EMEA	1.72%	21.93%
Latin America	5.40%	14.15%
Asia	4.60%	6.73%

Source: *Own Calculations and Statista*

The terminal growth rate is the rate at which Total Revenues grow in the steady state, which in our model is 4.7%. Not only it is showed in our forecasted income statement, as well as it is in accordance with the nominal long term growth rate of the economy, estimated with a 2.2% inflation rate in the long-run and 2.42% GDP real growth rate in the long-run (seen in **exhibit 15** as a weighted average of the GDP growth rate of the different geographies, weighted according to each one's revenues volume).

Another relevant estimation is the Terminal Value (TV), which reflects a steady-state performance of the Core Business. For our model this state is reached close to 2031, so our forecasts go up to 10 years. Our research has led us to the terminal value of 25 167.40 million dollars, after applying the terminal value formula to the last FCF forecasted (2031). Discounting the Free Cash Flows from each year at the WACC to the current year, we get a Value of the Core Business of 11 374.03 million of dollars.

Lastly, the non-core business was valued at book value, which is assumed as

constant from 2021 on.

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Exhibit 16: Whirlpool's Valuation summarized

VALUATION	
Value of Core Business	$ 18,017.05
Value of Non-core Business	$ 6,073.33
Enterprise Value	$ 24,090.38
Net Debt	$ 7,122.21
Equity Value	$ 16,968.17
# Shares Outstanding	62.7
Share Price	**$ 270.6**

Source: *Own Calculations and Bloomberg*

As **Exhibit 16** shows, the estimated equity value is 16 587.62 million dollars and Whirlpool has 62.7 million shares outstanding. This way, Whirlpool's target share price as of 31/12/2021 is $270.6.

Multiples Valuation

In order to consolidate our findings, we performed a multiples valuation based on comparable companies, the same ones considered for the beta's regression (the so-called comps). Considering the variety among our comps market cap, main industry and capital structure, a broad set of multiples was chosen to perform this analysis.

Exhibit 17: Industry key multiples

	P/E 2020	P/E 5Y	EV/EBITDA 2020	EV/EBITDA 5Y	Forward EV/EBITDA	Forward P/E	EV/Revenues 2020
LG Electronics	12.36x	12.36x	4.95x	4.95x	0.37x	6.81x	0.46x
Arçelik	7.21x	12.53x	4.89x	6.87x	5.41x	8.64x	0.63x
Electrolux	13.79x	14.47x	5.08x	6.25x	5.34x	11.98x	0.45x
Midea	20.05x	16.18x	22.97x	13.86x	13.81x	15.18x	2.53x
Hisense	8.66x	5.78x	6.41x	12.69x	5.43x	11.12x	0.52x
Haier	21.80x	16.63x	13.08x	11.10x	12.32x	18.33x	1.13x

Source: *Bloomberg*

Exhibit 18: Whirlpool 2022 Forecasted Values

WHIRLPOOL 2022	
Revenues	$ 23,914.92
EBITDA	$ 2,715.90
EPS	$ 22.10
Debt	$ 7,122.21
Outstanding shares	62.7

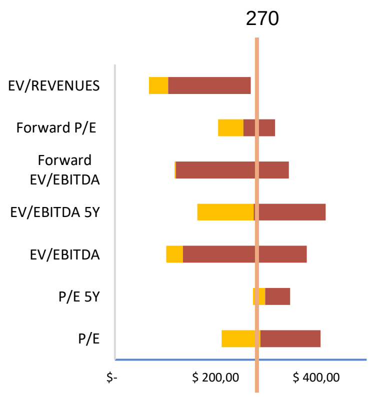
Source: *Own Calculations*

As shown in **exhibit 17**, there are three important periods at which our multiples

must be considered. The last completed year (2020), the past 5 years - which were valued as a median of the five in order to smooth the impact of Covid-19 and a forward expectation for 2022, the target year of our valuation, based on estimations retrieved from Bloomberg.

Lastly, considering the main statistical approaches (minimum, quartile 1, median, quartile 3 and maximum) for each multiple, the 6 comps were combined into single multiple for each and by applying those multiples to Whirlpool's forecasted values for 2022 (**exhibit 18**), a football field valuation was created. As presented in **exhibit 19**, one can conclude that even though the multiples analysis incorporates a wide diversification of ratios and companies, the 31/12/2022 share price of $270.6 estimated through the DCF method lies inside all the fields.

Exhibit 19: Football Field Valuation



Source: *Own Calculations*

Sensitivity Analysis

Lastly, a sensitivity analysis was essentially to be performed since Whirlpool faces a future of rather uncertainty and, after what unexpectedly happen in 2020 and went on for more time than predicted, the share price sensitivity to small changes in the environment must be considered. Being in the household appliances industry, the good can rapidly become bad. Considering mainly the digitalization and home-office trends, people are expected to have an increased desire for a smart and comfortable home over the next couple of years, increasing Whirlpool's revenues and market share, while being more cost-efficient. On the other hand, another lockdown or other unexpected event that decreases household's available income will also rapidly have a negative and way different impact from the predicted on Whirlpool's share price.

Likewise, four sensitivity analysis were performed. The first three were meant to get to the WACC values that could arise from the different scenarios, while the last one was the most important to consider – the share price variation according to the steady-state growth rate and the WACC. By varying the target D/E and the levered beta we got the possible re-levered betas and consequently by varying the betas and the cost of debt we got to the most likely WACC values in the different scenarios. Lastly, **exhibit 20** shows that the share price is highly sensitive to these parameters, rapidly going from $190.19 to $428.65 by varying the growth rate or the WACC less than 1.5%.

Finally, taking into the account the pandemic we have lived in for the last 2 years, it is relevant to affirm that the results and conclusions of this valuation are possible assuming an economic recovery starting in 2022, eliminating the key risks and maximizing the positive impact of the industry's trends.

Exhibit 20: Sensitivity analysis – Share price varying with different WACC and Growth levels

	8.00%	8.55%	9.10%	9.65%	10.20%	10.75%
4.00%	$ 321.56	$ 282.71	$ 252.18	$ 227.55	$ 207.23	$ 190.19
4.25%	$ 337.26	$ 294.27	$ 260.97	$ 234.39	$ 212.67	$ 194.58
4.50%	$ 355.21	$ 307.26	$ 270.70	$ 241.89	$ 218.58	$ 199.32
4.75%	$ 375.93	$ 321.96	$ 281.56	$ 250.16	$ 225.03	$ 204.46
5.00%	$400.09	$ 338.73	$ 293.74	$ 259.32	$ 232.11	$ 210.04
5.25%	$ 428.65	$ 358.04	$ 307.51	$ 269.52	$ 239.90	$ 216.13

Source: *Own Calculations*

Major Risks

In this chapter, after the valuation and key aspects of the organization were presented, now it is time to discuss the possible turn out of events in the worst possible manner, that could put a stake the future profitability of the organization.

The whole world has been in lockdown, came out of it, went back in, and came back to the outside world again. With the vaccines, the higher safety measures, the alternative ways the world has found to continue with life in what is now called a “new normal” were implemented. Yet, all these measures are seen as temporary, and the vaccine did not solve much of problems, as it doesn’t have effect on the recent dangerous variants that we are all facing. One of Whirlpool’s main risks is therefore the comeback of the lockdowns, both in terms of production, but as people tend to spend less while spending all their time at home, safeguarding for the event of losing their jobs or part of their salary. The pandemic has resulted in higher risks for the different geographical areas for Whirlpool to deliver its products and services. In addition, Whirlpool faces a problem regarding inflation, as it has many exposure to this factor across the globe, such is the case of Latin America, most recently.

Other less significant threats to Whirlpool include environmental pollution, something that this organization is fully aware of, and attempting to create, at all costs, new products and ways of being fully environmentally friendly. But that is a challenge to us all. The most obvious challenge is, due to high competition levels that one can verify in such an industry, is the loss of customers due to tastes and preferences, and the management team of Whirlpool spends plenty of money and resources so that it can stay in the leading position. Lastly, with Brexit, the situation in Europe became unstable, with a feeling of uncertainty in the air, a threat to Whirlpool, as a great deal of revenues come from such a market.

Finally, taking into the account the pandemic we have lived in for the last 2 years, it is relevant to affirm that the results and conclusions of this valuation are possible assuming an economic recovery starting in 2022, eliminating the key risks and maximizing the positive impact of the industry’s trends. Yet, if the economy had a larger boost than expected the recommendation would change to **buy** and if it only recovered in 2023 instead of boosting by then, it would change to **sell**.

Final Recommendation

To sum up everything that has been stated so far, and by performing a careful evaluation, we arrived at a final estimation of Whirlpool's share price with the value of $270.6. Considering that it is currently trading at $238.28 per share, we can reach the possible conclusion that Whirlpool's price per share is currently undervalued, yet, not by a significant value for us to conclude with such certainty. The shareholder's return would then be 7.72%, considering it is bought on the beginning of the year and sold in 31-Dec-2022.

Even though this value is higher than the maximum daily price observed in the last 12 months, Whirlpool Corporation is a cyclical organization, which means that its share price is closely linked to the state of the economy at each moment.

Moreover, the sensitivity analysis allowed to confirm the huge uncertainly that is around the future of the company and the industry and showed how a small change could make the share value extremely different.

Therefore, our recommendation at the light of the performed valuation, is to **Hold**.

Appendix

WHIRLPOOL CORPORATION

HOUSEHOLD APPLIANCES

STUDENTS: MARTA OLIVEIRA & SOFIA GOUVEIA

COMPANY REPORT

17 DECEMBER 2021

31821/32111@novasbe.pt

Living our homes to the fullest

Whirlpool transforming day-to-day lives

- Whirlpool Corporation's revenues are prevenient from four main geographical areas which are: North America (representing more than 50%), EMEA, Latin America and Asia.
- The company operates only in the Household appliances industry, mainly in the major appliances sector. This being sad, there are currently many trends to be highlighted that have a rather significant impact on the company financials: technological advances, increase in consumer power, home office, growing middle class and sustainability.
- From a DCF approach, we estimated a WACC of 9.23%, a growth rate of 4.68% in the steady state and a ROIC of 19%. So, the estimated share price is 270.61$, compared to a current share price of 238.28$, leading to a HOLD recommendation.
- The main risks of our valuation are related to the uncertainty of the economic recovery, since Whirlpool is a cyclical company and economic events that decrease household's income directly affect Whirlpool's revenues and forecasts. Furthermore, technological advances and e-commerce are the main drivers of the forecasted short-run growth, which means that a negative reaction to these trends and to the will of adopting a smart home would have a more drastic impact than in some other industries.

Company description

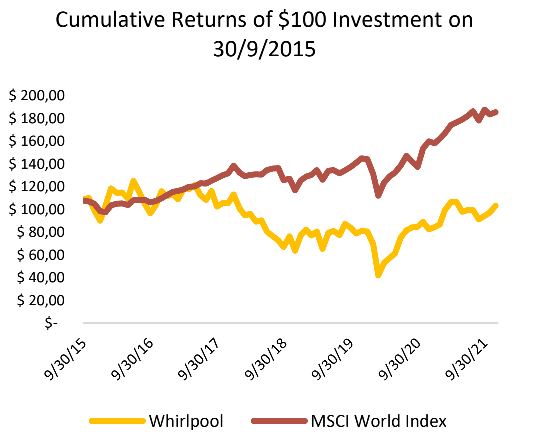
Whirlpool Corporation started in 1911 just as a small company located in Michigan. Currently, this organization is known as the best global kitchen and laundry organization, in constant pursuit of improving people's lives at home. The main products include laundry appliances, home dishwashers, refrigerators and freezers, among others.

Recommendation:	HOLD
Price Target FY22:	**270.61 $**
Upside/Downside:	*7.72%*
Price (as of 28-Feb-22)	**238.28 $**

Bloomberg

52-week range ($)	252.95-176.90
Market Cap ($m)	14.666
Outstanding Shares (m)	62.7

Source: Bloomberg



Source:

(Values in $ millions)	2020	2021E	2022F
Revenues	$19,456	$20,089	$2,1875
Revenue's growth	-4.72%	15.56%	6.37%
Gross Profit	$3,850	$4,502	$4,709
Core Result	$1,973	$1,759	$1,792
EPS	$17.07	$15.34	$22.10
ROIC	61%	58%	29%
FCF	$1,642.93	$-1,031.6	$924.62

Source: Annual Report & Own Calculations

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Company Overview

Company Background

The origin of Whirlpool Corporation comes from a vision that Louis Upton had, after losing his savings in a failed small appliance dealership[6]. Thanks to his uncle Emory Upton, his vision became a reality, leading to the opening of a machine shop under his family name, the Upton Machine Company, in 1911, located in Michigan, United States. Not long after, this small company got hold the Federal Electric division of Chicago-based Commonwealth Edison, opening doors to a significant growth.

UPTON MACHINE COMPANY

The firm continued its growth, with the launch of new brands, one of them called Whirlpool, whose line got plenty recognition, mainly due to the boom in consumer demand for convenience products brought up by the post-war period. In order to contribute to such a recognition of their signature brand, the organization changed its name in 1949 to Whirlpool Corporation. During these years the organization also looked at new ways of expanding its product offering, by merging with other firms within the Major Appliances sector and therefore able to provide customers with more diverse and improved products that better fit their needs and make the households tasks progressively easier. To this day, the main purpose behind this organization is the constant improvement in people's lives at home.

In addition, ever since the 1970s, Whirlpool has been a pioneer both in water and energy efficiency, all due to its high-quality Research & Development. The appliances offered not only help the end consumers in terms of utility bills but also, what is now a gigantic concern, to help saving the environment. With the future of our planet at risk, Whirlpool is playing its part, not only in terms of water and energy efficiency, but as one of the biggest users of green energy, specifically through wind, in the United States. Moreover, one of the main goals of such a company is to constantly reduce emissions and to reach zero manufacturing waste.

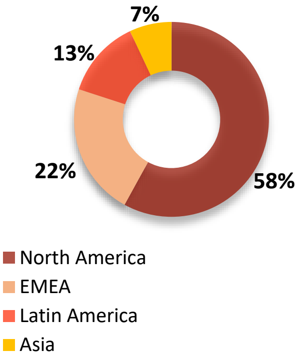
Company Description

Whirlpool Corporation is best known as the world's leading kitchen and laundry appliance company. In order to reach the end-consumer, the organization either sells directly to them, through its online website, at the moment limited to the United States, India and not many more or, and for now for the rest of the countries worldwide, the firm sells through intermediaries such as retailers, distributors or

[6] Whirlpool's company website - https://www.whirlpoolcorp.com/history/

builders, where depending on the intermediary, the customer can purchase the product either in a physical store or/and through their online channels.

Exhibit 1: Sales by region in 2020

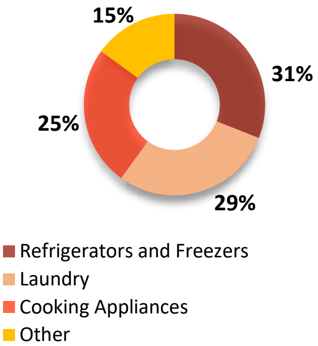


Source: *Whirlpool's annual report*

Whirlpool possesses several brands, some common to all geographies where the organization operates and some specific to certain regions, being that Whirlpool is the flagship brand, and therefore one that is common in all markets. Of its numerous brands, five represent 1 billion dollars or more each in terms of Total Net Sales.

The company operates in a worldwide level, keeping a leading position in several key countries where it operates. In terms of regional segments, it has four different segments: North America, EMEA (Europe, Middle East and Africa), Latin America and Asia. As these regions are in a different development stage, growth in each market can differ quite a lot. Whirlpool does its business segmentation through these four geographic regions, where it currently has a leading position in both North America (representing 58% of its revenues in 2020 and therefore the most important market for Whirlpool) and Latin America (13% of Whirlpool's total revenues in 2020), as presented in **exhibit 1**.

Exhibit 2: Sales by category in 2020

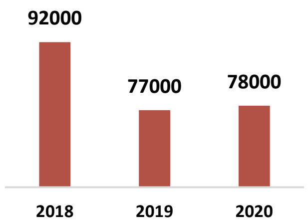


Source: *Whirlpool's annual report*

The total sales can also be divided into categories, visible in **exhibit 2**. The biggest share of Whirlpool's Net Sales is within the Major Appliances sector, more specifically, Refrigerators and Freezers (31%), Laundry (29%) and Cooking Appliances (25%). The "Other" category refers to dishwashers, mixers and other small domestic appliances.

Currently, with such a worldwide position, Whirlpool has 78.000 employees (**exhibit 3**) across the globe, with a wide diversity. In fact, just in the board, four are women (33%), three are from ethnic minorities (25%) and six have worked from outside the U.S. (50%). In addition, Whirlpool has also gained awards as the best employer, even for those who are just now entering the market, and in the beginning of this year, achieved (once more) a perfect 100 on the 2021 Corporate Equality Index for the 18th year in a row.

Exhibit 3: Number of employees in Whirlpool 2018-2020



Source: *Whirlpool's annual report*

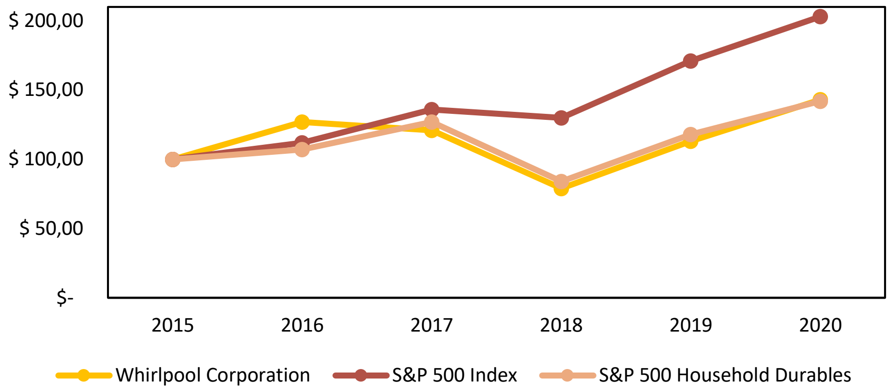
Indices

Whirlpool Corporation (exchange symbol: WHR) is publicly listed on the New York Stock Exchange (NYSE), Mumbai Stock Exchange, National Stock Exchange of India and MCX-SX Stock Exchange. The organization integrates the **S&P 500 Index** and the **S&P 500 Household Durables**.

By observing **exhibit 4**, one can conclude that, overall, in the past two years, the company has underperformed both indexes. In fact, it is also possible to visualize that Whirlpool's stock performance is highly similar to the one from S&P 500 [7]Household Durables.

In 2020, with the COVID-19 pandemic spreading across the globe, and the uncertainty it brought with it, led to the consequent fall of all stocks, where the hardest ones to have fallen as seen in the **exhibit 4**, the Whirlpool share price and the S&P 500 Household Durables.

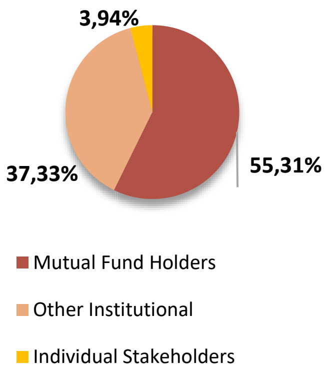
Exhibit 4: Relative stock performance of Whirlpool in comparison with S&P 500 Index and S&P 500 Household Durables



Source: Whirlpool's *Annual Report 2020*

Whirlpool is also included in **sustainability-based indices**, more specifically, the 2020 Dow Jones Sustainability Indices (DJSI) North America Index, where it stood out at level 13 (DJSI 13), where it has been included for the last 15 years, for its highly commitment to more sustainable business practices. In addition, within the Fortune 500 companies, Whirlpool is one of the most significant users in the United States of on-site wind energy.

Exhibit 5: Whirlpool's Shareholder Structure in 2020



Source: *CNN Business*

Shareholder Structure and Dividend Policy

At the current moment, according to Bloomberg, Whirlpool accounts for a market capitalization of 12.81 billion dollars and it has 60.74 million shares outstanding.

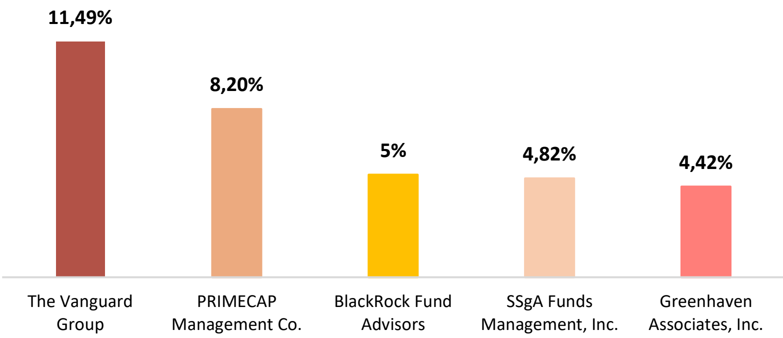
The shareholder structure in 2020, as it is possible to visualize in **exhibit 5**, is quite dispersed. Whirlpool has 1392 institutional owners and stakeholders.

The shareholder with the biggest share percentage is Mutual Fund Holders (55,31%), followed by Other Institutional (37,33%) and Individual Stakeholders (3,94%). Within the main shareholders, it is also possible to visualize the top five

[7] Whirlpool's company website - https://www.whirlpoolcorp.com/2020-dow-jones-sustainability-index/

shareholders of Whirlpool in **exhibit 6**, where clearly The Vanguard Group and PRIMECAP Management Corporation occupy by far the majority of ownership, with respectively 11,49% and 8,20% of Whirlpool's shares.

Exhibit 6: Top 5 owners of Whirlpool Corporation



Source: CNN Business

In terms of dividends that Whirlpool pays to its equity investors, the organization has been having stable dividends for the past 10 years. In **exhibit 7** shown below, in the table once can see that, even when the value of the firm's Net Income was negative, in 2018, the dividend was still delivered, meaning that Whirlpool Corporation had to use its existing cash or borrow money in order to deliver such. Despite the impact of the pandemic, the organization delivered shareholders a dividend 2% higher than 2019 (of $4,85), proving shareholders with a positive feeling and that even during the challenging times, the organization remains healthy.

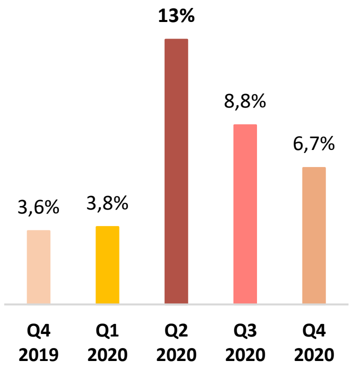
Exhibit 7: Whirlpool's Dividend Payout Ratio (2018 to 2021)

	2018	2019	2020	2021
Dividend per Share	$4,55	$4,75	$4,85	$5,45
Number of shares outstanding (in millions)	$63,81	$63,20	$62,55	$60,74
Dividends paid (in millions)	$290,33	$300,20	$303,35	$331,05
Net Income available to shareholders	-$183,00	$1184,00	$1081,00	$1915,00
Dividend Payout Ratio	**-1,59**	**0,25**	**0,28**	**0,173**

Source: Whirlpool's *Annual Report 2020; Market Screener and Own Calculations*

Lastly, with access to the latest quarters of 2021, a dividend per share of $5,45 is expected. In addition, based on the previous quarters of previous years, an assumption was made for the last quarter of 2021 in order to get to the annual Net Income of 2021, this one based on the lowest quarterly value of the current year, to prove that even the amount available in the upcoming year in terms of Net Income will definitely be a positive one for a shareholder of the company. In addition, one can also verify that the dividend per share provided has constantly been increasing and is expected to continue in this way.

Exhibit 8: Unemployment rate per quarter from Q4 2019 to Q4 2020

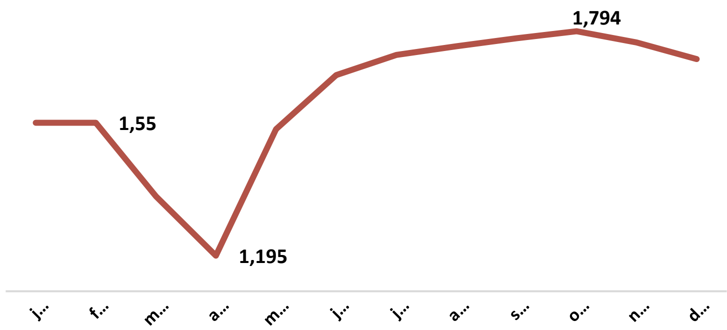


Source: U.S. Bureau of Labor Statistics

Impact of Covid-19

Once the pandemic arrived, the economy took a hit. With everyone at home, many, that were not able perform their job at home, unfortunately either lost their job, or received a smaller income that barely allowed them to survive. As demonstrated in **exhibit 8**, the United States unemployment rate peaked in the 2nd quarter of 2020, moving from 3.8% in the first quarter to 13%, a significant increase, a value the economy has not seen in years. Adding to this, the U.S. Census Bureau has also revealed that the median household income suffered a 1.2% decline from 2019 to 2020, which resulted in a decline in personal consumption, in this case, also in the Durable Goods sector as provided in **exhibit 9**.

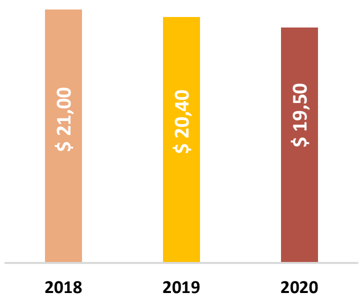
Exhibit 9: Personal Consumption Expenditures – Durable Goods in 2020 (in trillions of dollars)



Source: U.S. Bureau of Labor Statistics

The post-effect of the lockdowns has actually led to more spending in the durable goods sector for the rest of 2020 as seen in **exhibit 9**, as the demand shifted from services to these types of goods. As people found themselves spending more time at home, performing all sorts of activities, instead of, for instance, dining out, spent on goods that allowed them to perform tasks they otherwise would have paid off as services, such as laundry or dinning for instance.

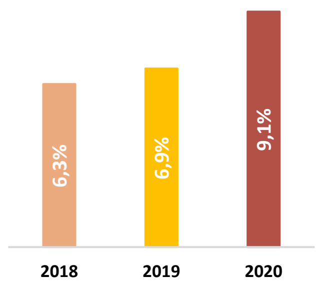
Exhibit 10: Whirlpool's Total Revenue 2018-2020



Source: Whirlpool's *Annual Report 2020*

Despite the boom in demand after lockdowns, the decline shown above resulted in Whirlpool's sales in 2020 having decreased. In fact, since 2016 it has been the lowest sales ever registered. Yet this decline in value was actually not that significant (**exhibit 10**). Preparing for the worse, Whirlpool Corporation took on early decisions and acted right away, both in terms of the market and inside costs. Not only did Whirlpool not have impactful factory shutdowns, but it also provided an outstanding service for its customers as this company was actually able to bring engineers into people's homes to repair and service their products. A customer just had to schedule in order to get their appliances either repaired or replaced, resolving the issues as quickly as possible. The commitment to customers was the key to success to the company.

Exhibit 11: Whirlpool's Ongoing EBIT margin 2018-2020



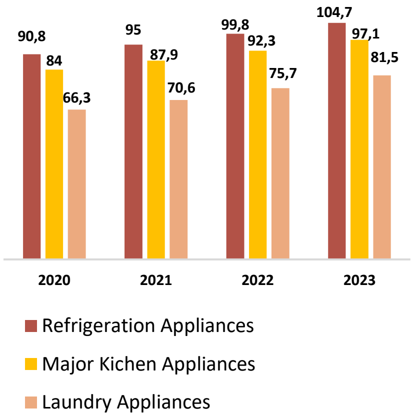
Source: Whirlpool's *Annual Report 2020*

All of these factors mentioned combined, both Whirlpool's performance in the worst months, and the consequent boost in household appliances have allowed Whirlpool to achieve an all-time record of its **ongoing earnings per share: $18.55**. In terms of ongoing EBIT margins, the organization was also able to deliver remarkable results, achieving a percentage of 9.1%, way above the past years, as provided in **exhibit 11**.

Industry Overview

Whirlpool Corporation is inserted in the home appliances industry, within the Consumer Durables sector. This particular industry can be divided into two highly relevant sectors: Major Appliances[8] and Small Appliances. Major Appliances are defined as large home appliances which are capable of completing regular household everyday tasks and needs such as cooking, laundry, food preservation, among others, a sector in which Whirlpool is highly invested in. The demand for such products is dependent on the consumer's personal income, how many houses have been sold, house remodelling or replacements of appliances in the case their previous product was not fulfilling its purpose or just because there was a need for an upgrade. Whirlpool's main products are in fact inside this particular sector, which is expected to continue growing for the next years to come, as provided in **exhibit 12**. On the other hand, Small appliances are portable or semi-portable machines mostly used on tabletops, such as coffee machines, tea makers, vacuum cleaners or blenders.

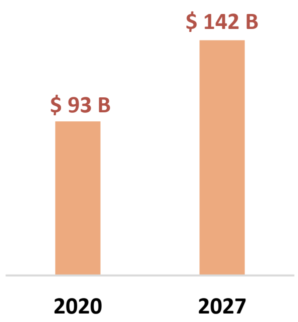
Exhibit 12: Retail Sales in Major Appliances 2020-2023



Source: *Statista "Household appliances retail sales value worldwide from 2015 to 2024, by category*

In terms of the entire market of Home Appliances, Major Appliances account for around 60% of the market's total revenue[9], but indeed less than 20% when it comes to the volume of sales. At the same time, despite accounting for a way lower percentage of the market's total revenues, small appliances is the largest segment in terms of sales' volumes.

Exhibit 13: Home Appliances Growth (CAGR of 6.4%): 2021-2027



Source: *Valuates Reports – Home Appliance Market Research 2027*

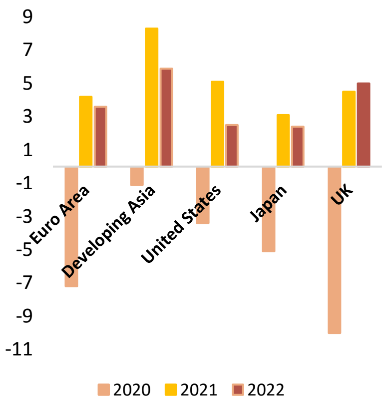
According to Valuates Reports[10], the global Home Appliances market is expected to grow at a CAGR of 6.4%, demonstrated in **exhibit 13**, from $92990 Million in 2020 to $141950 Million by 2027. The key factors behind such expected growth are the improvement of living standards, technological advances (increasing replacement sales) and consequent major trend of smart homes, the need on comfort when doing the ordinary house tasks, among many relevant others. These drivers are clearly connected with some restraints to some percentage of the

[8] Avenue - https://www.alliedmarketresearch.com/household-appliances-market
[9] Statista - https://www.statista.com/study/55489/household-appliances/
[10] Valuates Reports - https://reports.valuates.com/market-reports/QYRE-Auto-1992/global-home-appliance

population such as one's lower income to purchase such expensive products, and therefore lower possibility of both paying for the products, as along as affording the electricity expenses associated with such commodities.

Macroeconomic Analysis

Exhibit 14: Real GDP Growth Rate 2020-2022



Source: *IMF, World Economic Outlook Update, January 2021*

This type of analysis is always a challenging one. One could not have simply predict such a disaster as de pandemic brought to us by the end 2019. There grew a sense of uncertainty of what would come next: would this pandemic last for the next years to come, will a new one come soon? This perception made consumer's savings peak, as the new of an emergency allowance for such scenarios had to be created, leading to an expected fall of the economies' real GDP, as demonstrated in **exhibit 14**, as organizations faced lack of capacity in overcoming the challenges brought by the lockdowns, which increased consequently debt levels as some sectors froze, and, a synonym of uncertainty, volatility.

By the end of the year of 2020, even though the vaccine was on the path to its creation, new variants of virus kept arriving, posing continuous concerns for the subsequent year. Yet, according to International Monetary Fund (IMF), the global economy is actually projected to grow 5,9% in 2021 and 4,9% in 2022. This is mostly due to the new normal adjustments made, the new alternative ways created to live under such conditions, managing, and, depending on the economies, the access to medical help and effective policy support, among others. The United States, in particular, is expected to grow 5,1% in 2021 (**exhibit 14**), a value larger than the most other crucial economies around the globe.

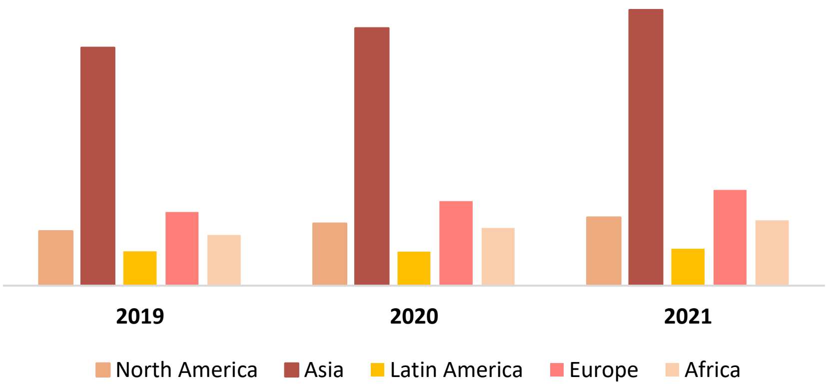
It is also pertinent to highlight the incredible performance of Developing Asia, more specifically, China, who took extreme actions to eradicate the virus from the beginning. These countries are expected to continue with a rapid growth for the next years to come, as they still are in the growth phase, and still far from the eventual steady state.

Geography Segmentation

The Household Appliances sector is present in a worldwide level. As presented below in **exhibit 15**, it is possible to realize that highest percentage of household appliances sales is done in Asia, with revenues far exceeding the other regions. In terms of production, this region also has a leading position, with China and Japan as the leading manufacturers of multiple household appliances.

Yet, Whirlpool's sales are much bigger in the United States than in this region, mostly due to the fact that Americans would rather spend money on an American company, thus, being loyal customers for a company such as Whirlpool. In fact, the household appliances market in the U.S.'s growth of 6.4% present in the last days, were a result of gains by Whirlpool of 1.8%[11].

Exhibit 15: Household Appliances Revenue by Region (2019 – 2021) in USD



Source: *Statista – Household Appliances Global Revenue*

Exhibit 16: Top 5 Countries in terms of Revenues in Household Appliances (Millions of USD)

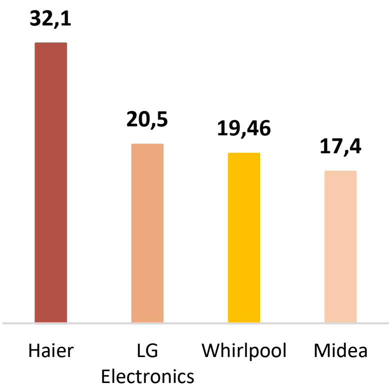
1.	China	146,627
2.	India	70,552
3.	United States	**63,037**
4.	Brazil	24,237
5.	Nigeria	21,780

Source: *Statista – Household Appliances Global Revenue Comparison*

It is also relevant to highlight that North America's sales of such appliances are indeed lower than the ones in Europe. More specifically, demonstrated in **exhibit 16**, household appliances sales rank is presented by country, where China is by far the one with the largest revenues, and the United States rank in 3rd place not so far from the sales presented in India (which occupies the second position). Being that the two top selling countries are in Asia, it is understandable the results seen in **exhibit 15**.

Additionally, besides Asia, another market that is expected to grow in terms of revenues in the next five to six years, according to what was published in *Statista*, is Africa, expected to surpass the U.S. in the medium to long term. A trend towards these types of products is also something clearly seen, as the revenues for all the regions presented represent a forecasted upward movement.

Exhibit 17: Top 4 Home Appliances Sales in 2020 worldwide (in billions of dollars)



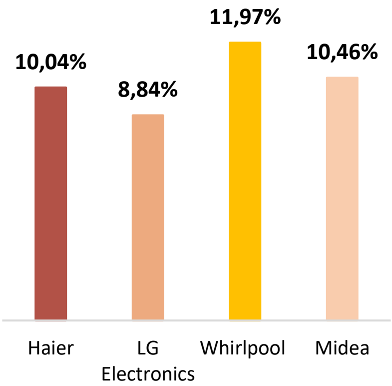
Source: *Statista "Selected leading home appliances manufacturers worldwide ranked by revenue in 2020"*

Competitive Landscape

The market of Home Appliances is fragmented with a significant number of players that characterize it, contributing a reasonable amount to the total industry's revenue. Some of the major global players in this market are: Whirlpool Corporation, Arçelik, Electrolux, LG Electronics, Midea and Haier. Most of these competitors are based within the Asian region, where important economies such China, Japan or South Korea are expectedly those who contribute extra for the overall revenues share for the entire region. Competition in most markets where

[11] Simply WallSt - https://simplywall.st/markets/us/consumer-discretionary/consumer-durables/household-appliances

Exhibit 18: Home Appliances Average ROIC (top organizations)



Source: *Bloomberg*

these organizations operate are based in multiple factors, mainly, product features, price, product quality, service, warranty and promotion.

Based on **exhibit 17**, Whirlpool Corporation was only surpassed in term of revenues in 2020 by two firms: Haier and LG Electronics, ranking in 3rd place in worldwide revenues. Whirlpool was yet not far for the second place occupied by LG Electronics, having similar sales in this problematic year. It is also relevant to point out the outstanding difference in revenue of Haier when compared to all other competitors in the market. As the values may not be fairly comparable to one another, the profitability ratio **Return on Invested Capital (ROIC)** was used, so that one can better understand what differs these companies from one another. As **exhibit 18** demonstrates, it is Whirlpool Corporation that has the best ROIC performance of all the top four vendors worldwide in 2020, despite not having the highest revenue share (almost 12%). Furthermore, both Midea and Haier have a similar performance, with their respective ROIC around 10%.

Whirlpool has three key competitive advantages that will allow for growth to continue in the upcoming years:

1. **Branding**: According to *YouGovAmerica*[12], in the top 5 most popular appliance brand names in the U.S., one can find three brands of Whirlpool: KitchenAid (1st), Whirlpool (3rd) and Maytag (5th). In this type of industry branding is key. Especially since when one individual is purchasing an appliance at Whirlpool, he is likely to purchase more there. Brand loyalty especially in the U.S. is highly relevant for Whirlpool
2. **Size:** As verified in **exhibit 17**, Whirlpool ranked number three as in sales of home appliances. In such a competitive industry, being a large, well-known company (now going back to branding), customers prefer to spend their income on something they are more familiar with. In addition, being a larger company, means it has more resources available, allowing for more leverage, and for more opportunities (they can purchase more easily a smaller company such as a start-up), and makes it more difficult for others to purchase them.
3. **Management:** Whirlpool has been going through decades, evolving, and that is only possible with a quality management team. As long as it continues to have such a team, this competitive advantage remains.

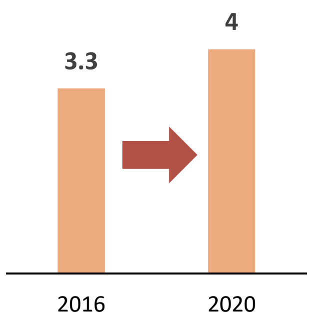
These competitive advantages derive from a **diverse quality product portfolio**, its **availability** across the globe (present in regions worldwide), the spread **manufacturing** centres in multiple regions, which have been excelling in productivity and efficiency, and Whirlpool's clear **dominance** in selling washing machines, where it has been investing plenty in the past years.

[12] https://today.yougov.com/ratings/consumer/popularity/appliance-brands/all

Some not so satisfactory points of Whirlpool at the moment are its **revenue stagnation** in the past years, rounding $21 Billion in revenue, indicating that either Whirlpool has not been expanding or it is losing share to its main competitors. In addition, this organization is mainly **dependent** on the U.S. market, as well as some other regions. Losing market share in these regions poses a huge risk.

There is not much of a threat when it comes to new entrants in the market, as it requires significant investments. Yet, this market is already highly competitive, posing risks to Whirlpool's existing share of the market.

Exhibit 19: Change in internet users from 2016 to 2020

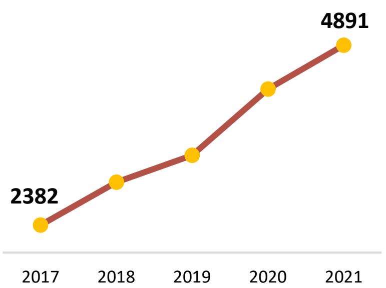


Source: *EMarketer and Electrolux estimates*

Trends after the appearance of COVID-19

There are several trends one can identify in the Home Appliances industry, some that were a result of the global pandemic that appeared in the end of 2019, and that has changed our lives in a permanent way. Below, it is possible to dig deep on the most relevant trends this industry is facing at the moment.

Exhibit 20: Retail e-commerce sales worldwide 2017-2021 (in billions of dollars)

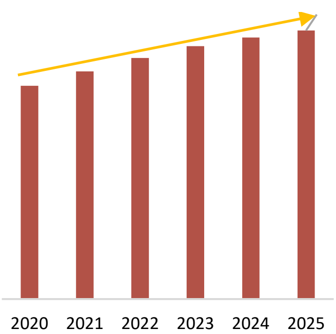


Source: *Statista "Retail e-commerce sales worldwide from 2014 to 2024"*

▪ Digitalization / Technological advances

In the past decade, digitalization has been growing at a remarkable speed. Ever since the emerge of internet among other technological advances, the world has not been the same. It has made and continues to make progressively our lives easier, in a way we would not think to be possible if asked a few years back. The internet is becoming more and more essential in our daily lives: as presented in **exhibit 19**, once can see the evolution in terms of users within four years: **12%**, which equals to more 700 million users, allowing companies like Whirlpool to reach more consumers and therefore increase its customer demand.

Exhibit 21: Retail e-commerce sales home appliances (in billions of dollars)



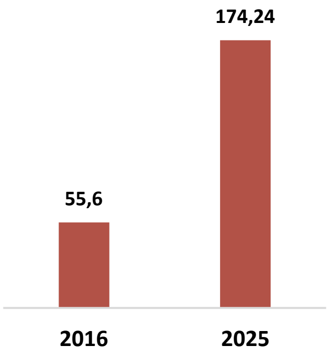
Source: *Statista Furniture & Appliances eCommerce report 2021*

As mentioned previously, the change to digital is happening at an incredible pace. As COVID-19 reached the entire globe, bringing the lockdowns, those who were selling through online chains, hardly faced the pandemic consequences. As it is demonstrated in **exhibit 20**, the percentage of online sales has been increasing. In addition, one can also see the major difference between 2019 and 2020, where these types of sales peaked. Only now are consumers becoming more and more comfortable with purchasing products such as refrigerators, among other major items through the internet. In this particular industry, the growth of revenues through e-commerce is also seen, and according to projections from Statista, shown in **exhibit 21**, is expected to continue for the next years to come, going from 138.8 billion dollars in 2020 to a predicted value of 174.7 billion dollars in 2025.

In addition, through online methods, consumers can get the immediate, convenience and low prices they crave. As most consumers still have the need to test these products, there is an opportunity for pure-play e-commerce outlets, allowing consumers to view and "test-drive" these products in person. Even though Whirlpool has been selling through online channels, it only started with an e-commerce analytics solution by the end of December, with eStoreCheck. According to this organization[13], this action was what ensured Whirlpool to be ready once the pandemic actually arrived, establishing digital shelf war rooms. In addition, the company has also invested in education and training to ensure e-commerce analytics were used in the best way possible. According to Statista[14], the best three online stores in the appliances segment are Amazon.com (where Whirlpool sells exclusively its latest detergent, Swash), homedepot.com (The largest retailer for Whirlpool) and walmart.com. One of Whirlpool's main competitors, LG Electronics is planning to get deeper into the e-commerce business. Its plan is to pursue selling consumer goods used in its home appliances through its LG ThinQ app, enabling users to control and manage LG devices, as well as to order goods, all in one app, similar to Amazon's Dash service.

In 2020, according to the annual report, Whirlpool Corporation achieved almost $1 billion in revenues through its D2C business (developed in 2019, through Wpromote). Furthermore, Whirlpool sealed a deal with VTEX[15] in order to use its platform to enhance its e-commerce sales. The partnership began in Brazil, but the scope of the agreement has changed to a global one. Digital has now become core to Whirlpool's business, and therefore a key objective is to make this digital experience a unique one. From the success of DTC strategy in Brazil, Whirlpool has learned the key aspects to expand this strategy globally.

Exhibit 22: Worldwide Smart Home Market Value (in billions of dollars)



Source: *Marketwatch*

Focusing on the products themselves, there is an increased demand from consumers to get smart appliances in order to improve their quality of life and be able to take control of their houses from the distance, with the use of internet and Bluetooth connected devices. As seen in **exhibit 22**, the smart home market is expected to have a significant increase in the next years. Appliances nowadays are constantly improving and being connected to our cell phones. We can control what goes inside our homes from our own smartphone. With such notable changes in so little time, it is important that Whirlpool keeps innovating its technology (in order to make "smart" homes smarter), so that it does not get behind on technology. For instance, LG Electronics, one of Whirlpool's competitors, just upgraded Laundry to a whole new level: a Wash Tower and a Styler Steam Closet, achieving both in innovation and design. The Wash Tower takes off half the space normally used, while providing great capacity. The Styler Steam Closet refreshes,

[13] https://www.estoremedia.com/blog/how-data-helps-coty-whirlpool-drive-ecommerce-expansion-during-the-coronavirus-pandemic
[14] Statista - https://www.statista.com/forecasts/646185/top-online-stores-furniture-appliances-united-states-ecommercedb
[15] https://vtex.com/en/blog/customer-stories/whirlpool-customer-success-partnership-vtex/

deodorizes and sanitizes clothes, all in your own home, without needing to resort to the use of chemicals.

- Consumer Power

With the above trend mentioned, consumers now have access to all kinds of information, and after the lockdowns, with the subsequent increase in usage of e-commerce platforms, customers can now make their decisions in terms of purchases based on several prices, specific product characteristics, other offers, and highly important in these platforms, online reviews. As a matter of fact, Qualtrics.xm[16] studies have shown that **93%** of consumers make their decisions based on online reviews, not only this, but consumers actually would pay extra just to have a better experience. In such an industry as Home Appliances, consumer experience is key. According to an expert, Christina Cooley, it is the unsatisfied customers in this industry that tend to express more their opinion, mainly online, than those who are satisfied. This opinion indeed matters, according to OBERLO[17], 79% of the online customers trust what the reviews from each product, and furthermore, 62% of consumers are not willing to purchase products from an organization that blocks online reviews.

The main objective is for you to be able to experience comfort inside your own home. With such data on consumers, there is a great opportunity for those who offer to set premium pricing and allow from greater competitiveness.

With the pandemic, a new safety concern as arises, as most now prefer to avoid returning to stores, and to purchase such sizeable appliances through non-physical methods and instead, through online channels, which also allow the consumer to access, as mentioned above, all kinds of prices and products, as well as, reviews, and most importantly, they also are able to obtain considerable discounts in such goods. Ultimately, consumers are also preferring to spend their money into brands that have a deeper purpose, that make a difference, to match their own personal values.

Whirlpool's mission statement is to **"Earn trust and create demand for our brands".** With this Whirlpool is actually pursuing several crucial factors: be famous for positive reviews also through, as mentioned above, and quite a trend nowadays, to transform consumer's homes to an enjoyable experience. Through such, Whirlpool is able to gain loyal customers, that know they can count on such

[16] https://www.qualtrics.com/blog/online-review-stats/
[17] https://www.oberlo.com/blog/online-review-statistics

the organization every time some product is not working properly, something that has been seen at the most difficult times, during the 2020 lockdowns.

- Greener technology/ Sustainable options

"77% of Americans are concerned about the impact the products they purchase have on the environment"

Now that we are becoming more aware of the negative impact society is causing on the planet we are living in, it is time to make a change, to start changing the way we do things. At the moment, we need 1.75 planets in terms of resources we are using, and it is expected that, by 2023, we will need two whole planets worth of resources. Once you put thought into it, the kitchen tends to be the most used space inside one's house. Therefore, it is also the one where we should make the biggest change to a healthier and more sustainable lifestyle. It is already possible to see such a trend in the majority of consumers' mindset. In fact, two out of three consumers, globally speaking, are willing to pay extra if a product is sustainable. In the U.S. it is the millennials who have the highest percentage (75%) of willingness to pay more for a greener product, according to GreenPrint[18] surveys. In total, **77%** of people in the U.S. are actually concerned about the impact that the products they purchase will have on the planet. Not only consumers, but authorities are increasing significantly the amount of pressure put on manufacturers for the production of more sustainable products (by, for instance, making more efforts to reuse some parts of outdated products instead of simply producing new ones), and also pressure in terms of energy and water efficiency. Whirlpool made a global commitment that by 2030, they will achieve net zero emissions in their plants and operations. These efforts, according to the company's website[19] involve installation of LEDs and Energy Management Systems. In their facilities the firm is also working towards a full renewable energy consumption made by combining wind turbine and solar panel that will be constantly be installed in the facilities. In its products as well, according to YourSource[20] News, Whirlpool is investing in new developments that set water levels and can also set auto-dose detergents in order to diminish even more the harm to the environment, while, at the same time, saving time and money to the end-user. Going back to the consumer usage, Whirlpool also created a website, improvinglifeathome.com, built with the main objective of helping the environment at home, with useful tips to make the kitchen more sustainable for instance, among other inspiring ideas, and creating awareness for such an important matter. This is a relevant aspect, because until now, according to a GreenPrint survey, the segment that is

[18] https://www.businesswire.com/news/home/20210322005061/en/GreenPrint-Survey-Finds-Consumers-Want-to-Buy-Eco-Friendly-Products-but-Don't-Know-How-to-Identify-Them
[19] https://www.whirlpoolcorp.com/environmental-sustainability/
[20] https://yoursourcenews.com/2021/05/whirlpool-commits-to-100-clean-energy-by-2030/

demonstrating the most their concern for such an issue is the food/groceries. To continue building trust and loyalty, organizations need to properly demonstrate such concerns, as it is increasingly becoming a factor, from Boomers (57% willing to pay more) to Millennials (75% willing to pay more).

- Growing Middle Class

The global middle class continues to rise, and it is driving market growth in developing regions such as Africa, Middle East, Latin America and South East Asia, representing an opportunity of around six billion new consumers. In Asia, the middle class is not only expanding but enjoying increase in income. Along with this is their spending percentage, which is also expected to increase progressively in the next years to come. As stated by Vision Research Reports, the smart kitchen appliances industry share is expected to grow 20% per year until 2030, with a significant increase in value from $10 billion today to $40.5 billion in 2030, and the main reasons behind it are the increase in the customer disposable income, as well as the constant technological trend, to have everything updated.

As developed neighbour countries such as Japan or Singapore, as mentioned above, are increasingly trying to make a change into “smart cities”, with smart integrated appliances, with such developments in the developing next-door markets, they expected to invest much more on such a transition, having technology as a support in terms of daily tasks.

- Home office

The pandemic brought many positive and negative aspects. In order for the economy to continue moving further, people had to switch their jobs in the regular office and move it to the inside of their homes. As expected, the majority of the population was not prepared for such a change, as most did not have the possible working space at home desired, and the household tasks got all mixed together, losing the functionality of the home. It was a time to get creative, to make it work, and for a lot, to fully renovate the core elements of the house.

With the idea that the pandemic would be here to stay, as well as the fact that people began to see and value their homes like never before, home gained a different meaning. Most aspects of our lives will never be the same, and hybrid work or full home office is here to stay, according to many studies, for example one given by ZDNet[21], where tech workers for instance are expected to continue working fully at home. The effects of spending more time at home are now being

[21] https://www.zdnet.com/article/tech-jobs-remote-working-is-here-to-stay-and-some-employers-are-worried/

seen. Homes should not only satisfy physical but also emotional needs. In this sense, consumers want to invest more in their homes, in customizations, for instance. In a survey published by FOODDIVE[22], it was shown that after the pandemic 7 out of 10 American consumers want to keep cooking at home, as it helps save money (67%), or due to personal health reasons (56%). Furthermore, according to IEA[23], spending more time indoors means changing the needs for comfort at home. IEA points out consumer electronics and small appliances as two segments that have increasingly gained importance, as home entertainment and cooking are one of the main changes in individuals' lives.

This actively demonstrates that, as the spending time at home increases, so does the importance of having an environment full of high-quality technology in order to be able to spend a quality time, whether it is working, cooking, relaxing or doing other chores of the house.

Value Drivers and Forecasts

In order to be able to determine the organization's value, it is relevant to understand what drives the key financials, mainly its revenues. Furthermore, after incorporating these financials to get to the future annual reports, we will proceed to the Discounted-Cash-Flow Analysis, with which, finally, a stock price of Whirlpool can be estimated, as of the year ending 2022.

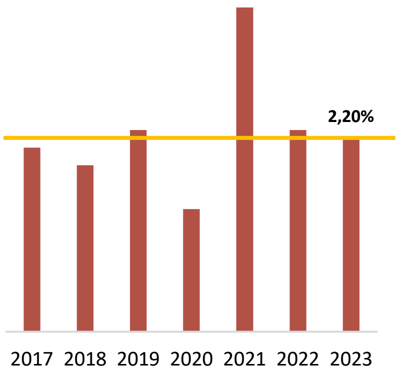
Revenues Forecast

Despite what happened in the last couple of peculiar years, Whirlpool Corporation was able to keep its revenues somewhat stable across its four main regions, which are North America, EMEA, Latin America and Asia, showing small decreases compared to what happened in other industries. Currently, let us recall that 58% of Whirlpool's revenues come from North America, followed by 22% from EMEA, 13% from Latin America and only 7% coming from Asia. As previously stated, Whirlpool operates in the household appliances industry and its sales fluctuate accordingly with the fluctuations of this market.

[22] https://www.fooddive.com/news/survey-7-in-10-consumers-say-they-will-keep-cooking-at-home-after-the-pand/593532/
[23] https://www.iea.org/commentaries/how-appliances-have-supported-a-world-in-lockdown-and-what-this-means-for-energy-efficiency

- Inflation

Exhibit 23: Inflation rate in the U.S. (2017-2023)



Source: The balance: "*US Inflation rate by year from 1929 to 2023*"

Firstly, it is important to recognize that revenues in this industry can be assumed as the multiplication of the number of products sold by the average price per product, in all geographical areas. Even though there are different product categories, which imply different prices for each product, we will consider an average value in our analysis, assuming all of them grow at the same inflation rate. Furthermore, even though each region has its currency (or even multiple ones), Whirlpool is headquartered in the U.S. and all revenues are reported in the annual report in USD (U.S. dollars). This way, we considered the estimated inflation rate for this currency for the upcoming years and applied it to the different areas.

As seen in **exhibit 23**, the U.S. inflation rate is expected to reach a value of 2,2%[24] per year in 2023, which we then considered to be the value in which this rate stabilizes, after the economy suffered the pandemic crisis followed by the peak in the inflation rate we are facing this year (2021), as also presented in the exhibit. This particular value is considered a moderate inflation of prices in the modern economy and slightly higher than what happened in the last two years due to the pandemic. Yet, central banks try to prevent severe rates, once it can drastically influence the purchasing power and consequently harm countries' GDP.

Overall, the average price per product driver is different across the different geographical areas since most products sold are different and so are their prices, when considered at the local currency. This driver grows at the same pace as the previous mentioned inflation rate, year by year, across the world. Moreover, when it comes to the number of products sold, the two main factors influencing this driver are – the real GDP annual growth rate and the percentage of the workforce working from home at least once a week. These drivers do vary across the regions and therefore its forecasts are distinct.

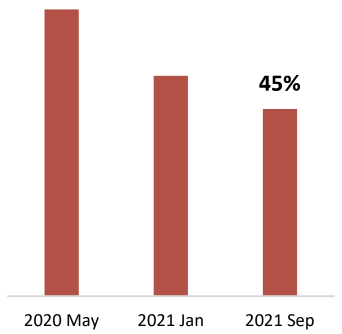
- North America

As for the North America region, the U.S. and Canada show a similar behaviour over the years and therefore we assumed the U.S.' values as a proxy for the whole region. According to the WorldBank, the GDP growth rate was negative in 2020 due to the Covid-19, but it is expected to recover over the next years and grow at a constant rate of 1.70% per annum in the long-run, as shown in **exhibit 25**, once developed economies do not present the same opportunities for GDP growth as developing ones do. For the same reason, it would not be reasonable to assume that the quantity sold each year would increase at the same pace as the GDP but,

[24] https://www.thebalance.com/u-s-inflation-rate-history-by-year-and-forecast-3306093

accounting for the e-commerce trend and the effect it will have for Whirlpool, we assumed that it would increase 20% slower than the GDP growth, each year.

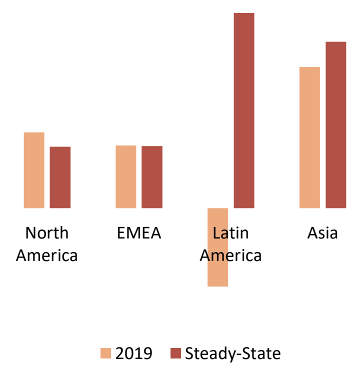
Exhibit 24: Percentage of US work force working at home



Source: Gallup – *"Remote Work Persisting and Trending Permanent"*

As for the home office driver, since the beginning of the pandemic the percentage of the workforce working from home at least once a week in the U.S. increased about 31% and, now that everything is expected to go back to normal, studies expect only 7% of this increase to come back to full time in-person work. In **exhibit 24**, one can see the actual difference between the values during the pandemic (69% in 2020), to the adaptation to the new normal nowadays, which is around 45%, a value that we expect to continue for the next years to come. This way, we assumed for the purposes of our model that one fifth (20%) of the annual increase in home office percentage would be translated into the need of getting a new and more comfortable house, better equipped and easier to use, considering the extra time that was now spent in there and the necessity of having a more efficient (and smart) home. This way, this driver contributes positively for the number of products sold increase in 2021 and slightly negatively for 2022. Thereafter, this driver would have no influence in the household appliances' sales.

Exhibit 25: GDP Growth Rate 2019 vs. Steady State



Source: Statista and Own Assumptions

Overall, the revenues verified in this region will continue being the ones with the highest share of the firm. It is relevant to remember the key message behind Whirlpool: "Earn trust and create demand for our brands". Whirlpool is a company that has grown especially in the United States, due to the loyalty, product of the quality of its services. With the agreements made with VTEX, among other efforts the company made to increase its online presence, Whirlpool is expected to continue thriving in customer satisfaction, therefore it should have no problem keep or even growing its percentage of customer loyalty. This along with the constant efforts of sustainability and innovation, applying smart tech to its products, is the reason why we expect such a growth in North America's revenues.

- EMEA

In the EMEA region, an European Union proxy was considered since there are more European countries weighting for the sales revenues in this geography. In **exhibit 25**, it is possible to compare the actual difference between the pre-COVID era with the expected long run effect. The year of 2019 was used since it is the most recent stable year, whereas 2020 is one of a kind, an outlier once compared with the rest. In 2020 the GDP dropped almost 7%, whereas in 2019 GDP growth registered was 1.74%. As seen in **exhibit 25**, this rate is expected to recover from the devastating 2020 over the next 3 years, stabilizing around 2023 to a 1.72% annual growth rate thereafter. Furthermore, Whirlpool is planning to increase its online presence, in particular, its own website, available in more geographies, which will allow for the growth of customers, as it is this segment is such a trend, and, therefore, will have a positive effect throughout the next years.

As for the home office influence, it increased from 24% to 50% and it is expected to remain this way in the long run, since this region wants to keep the increase that the pandemic brought. Again, one fifth of this increase will also raise the number of products sold in this region.

- Latin America

In the Latin American region, GDP dropped more than in the other ones, demonstrating a decrease of 17% due to the covid-19 effects. This way, and considering these are mainly developing countries, according to Statista, it is expected that the GDP in this area will recover over the next 4 to 5 years and then stabilize with a growth of 5.4% per annum in the long run, increasing the purchasing power and income available to spend on this industry. As **exhibit 25** shows, this geography is the one with the biggest difference between the GDP growth rate pre-pandemic and in the steady state, which presents considerable growth opportunities. These opportunities arise from the trends in this industry, in particular the need to improve quality of life at home, brough by the pandemic, as well as the growing middle class that is arising in this region, allowing for higher purchasing power for durable goods, such as the ones Whirlpool provides.

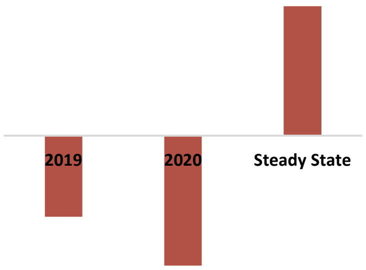
As for the home office driver, in this area it has little influence since it was already increasing before the pandemic. This aimed to reduce pollution and was also due to the fact that more young workers were entering the working world, revolutionizing it.

- Asia

Lastly, GDP in Asia did not drop that much due to the pandemic effects, but it is expected to increase considerably over the next years and stabilize at a growth rate of 4.60%, as shown in **exhibit 25**. This happens because of the emerging markets, which offer huge potential for growth and investment opportunities, but are also extremely volatile.

In terms of the home office, this driver is not considered to have any particular influence in the revenues of Whirlpool since, unlike the U.S. and the EU, Asia wants to come back to typical office environment. In fact, the growth in revenues in this region is mostly due to two factors: the rapid change in the key countries to smart cities, and the growing middle class expected to continue in the upcoming years. These individuals will therefore be looking for with the extra disposable

Exhibit 26: Whirlpool annual growth of Net Sales: current and forecasted steady state



Source: Own Calculations

income, to constantly improve their tech at home, as living in a city with everything connected through digitalization, it is natural to feel that you need to include that in your personal space. So, the extra income allows for such a need to be accomplished. The main threat is that this region is the one with the more significant competitors for Whirlpool, so it is important to step it up in innovation and try to be a pioneer in new smart tech developments.

Overall, **total net sales** are expected to increase continuously. In the **exhibit 26**, it is possible to better compare this evolution in terms of annual growth. In 2019, Whirlpool verified an annual sales growth of -2.94%, while in 2020 this value was -4.72%. According to all our previous conclusions made based on the current and expected trends, and expectations of the economic growth of each region, according to statistics, it expected that the steady state annual growth rate assumes the value of **4.68%**.

Expenses Forecast

When it comes to the overall costs, as there is not sufficient information provided by the organization in its annual report for it to be divided into segments, as performed in the Revenues Forecast, this segmentation was not performed, and the values were forecasted at their full value.

In terms of the core operations of Whirlpool Corporation, the two accounts that are clearly the most relevant are: Cost of Sales and Selling, General and Administrative, presented in detail below.

▪ Cost of Goods Sold

The Cost of Goods Sold are dependent of numerous factors. The three main factors are: the number of products sold, the number of manufacturing locations, and lastly, the number of employees hired by the organization. Starting with the number of products sold, which are directly connected and explained by the new relevant trends in the market, mentioned above also in the Revenue Forecast chapter, which are among others, inflation rate, GDP growth rate, and the key changes expected to see in the market, such as home office, ecommerce, among others. With regards to the number of manufacturing locations, Whirlpool Corporation has been decreasing these over the past years as in a way to save costs for the firm. Yet, as the demand for major appliances is expected to increase in the next years, as people's homes gain more importance, the firm is forecasted to maintain the number of manufacturing locations to face the future increase in worldwide demand. In addition, we do not find the need for it to increase due to the expected increase in technology advances, that make it possible for the equipment to be more efficient and produce even more. The last factor that needs to be mentioned is the number of employees of Whirlpool. This factor is expected to increase as demand for products increases. An assumption was made, that each year the number of employees is going to have an expected growth of 1.5% compared to the previous year. By means of this, the number of employees does not increase in the same proportion as the revenues once the future equipment is expected to be more and more efficient, leading to the less need for employees to operate them. In conclusion, this increase in sales does not require the COGS to increase in the same way revenues do so.

Exhibit 27: Cost of Goods Sold (2020-2026)

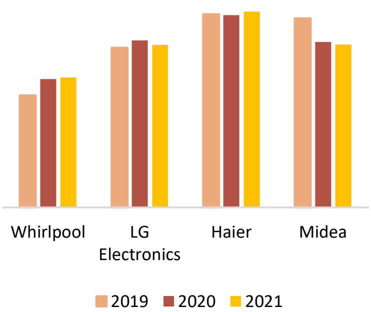
	2020	2021	2022	2023	2024	2025	2026
COGS	$15606	$17981	$19206	$20203	$21205	$22231	$23312
#products sold	63.87	70.68	73.63	75.64	77.52	79.37	81.27
#manufactoring locations	35	35	35	35	35	35	35
#employees	78000	79170	80358	81563	82786	84028	85289

Source: *Annual Report and Own Calculations*

By observing the **exhibit 27**, one can better perceive the change in Cost of Goods Sold mentioned just above, which reflects also an increase in efficiency, something that Whirlpool is constantly searching for, both for the final products and for those who allow for the production, both in terms of costs and in terms of reducing the pollution associated with production.

Consequently, the forces of the trends as well as the economy's recovery will lead to a consequent increase in the forecasted Gross Margin. In the next exhibit, it is possible to have a broader view of this account of Whirlpool once compared to its main competitors. As provided in **exhibit 28**, it is possible to conclude that Whirlpool is not the best when it comes to Gross Margin. Yet, taking into account that it is the only company outside the Asia region that stands in the top four, shows how competitive and how much effort they make to reach such a value, since in this region, labour is known by being way cheaper and so are materials, providing the others with a great advantage for this metric. In addition, as mentioned, this metric is expected to increase due to great efforts made by the firm.

Exhibit 28: Gross Margin across main competitors



Source: *Bloomberg and Own Calculations*

- Selling, General and Administrative

The second core cost includes all other operating expenses that occur on a daily basis, such as advertising or salaries. With the expansion of the number of consumers across the globe, the continuous e-commerce customers that live by reviews, and good advertising campaigns, there is more than ever a huge need for an increase in efforts to attract and reach consumers, to market their products so that they will buy more of Whirlpool and less of what else is on the market. Therefore, an assumption was made, that due to extra costs such as marketing expenses, advertising or distribution costs to get a better competitive advantage faced to others, these expenses would increase to 12% per year for the subsequent periods to come.

- Non-core Expenses

In terms of the non-core part of the business, meaning expenses that are not part of the normal course of the business, it is relevant to point out the following two: Restructuring costs and Intangible Amortization. Whirlpool has been focusing on global cost reduction efforts. Indeed, Whirlpool hasn't been yet able to cut all costs associated with restructuring, yet it is expected that in 2021, these will be cut from $288 (2020) to $100 in the next year (2021), stated in the annual report of the organization. Furthermore, these costs are expected to be eliminated completely, therefore the forecast from 2022 onwards is that these costs fade completely.

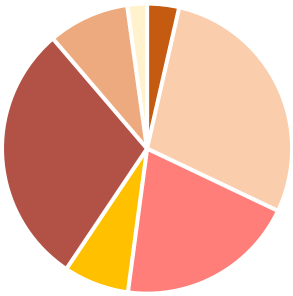
In terms of intangible amortization, this was also considered as a non-core expense, as it does not occur in the normal course of the business. Therefore, assuming a straight-line method, we assumed this value to be forecasted as constant and equal to the one provided in 2020.

- Statutory Taxes

The current statutory tax rate[25] applied in the U.S. is 21% and has been over the past years, yet it is forecasted to increase to 26% in the long run. This increase is most likely to harm the U.S. economic competitiveness and increase the cost of investment in America, which will bring a huge restriction. Yet, according to Reuters, President Biden's plan is to increase the corporate tax rate from 21% to 28%, actually, believing that this increase was aimed and necessary. In addition, according to thehill.com[26], the democrats have their eye on an expected increase, which we considered to be more reasonable and less drastic, to 26%, the value used for the valuation.

[25] https://www.reuters.com/world/us/even-after-biden-tax-hike-us-firms-would-pay-less-than-foreign-rivals-2021-06-22/
[26] https://thehill.com/policy/finance/571913-house-democrats-eye-256-percent-corporate-tax-rate

Exhibit 29: Core Assets Distribution



Source: *Annual Report*

CAPEX and Core Assets

As for the Core Invested Capital, Whirlpool is expected to increase its investments, especially in the Capex section, since production will be more efficient due to technology, and this presumes an increase in the company's assets. **Exhibit 29** shows each core asset's contribution for the total core invested capital, pointing out the need for PP&E, inventories, and accounts receivable when operating in this industry, captions that will keep up with the industry trends and sales increase. As for the non-core invested capital, most captions are assumed to remain constant to what was verified in 2020. The exceptions are Pension Benefits and Postretirement benefits, where an average of the past three years was used to get the forecasted values, which then remained constant throughout the years. The reasoning behind this decision lies on the fact that, due to the pandemic, Whirlpool had its focus on constant cost reductions, preparing for the worst.

Return on Invested Capital (ROIC)

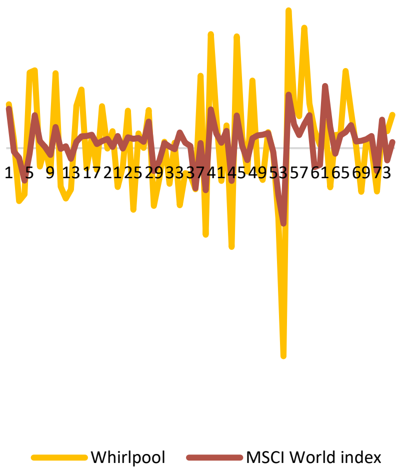
Regarding the Return on Invested Capital (ROIC), the method used to calculate this measure of profitability was to divide the total core result of the current year that is being analyzed by the total core invested capital of the preceding year. When calculated from the forecasted values, this ratio reaches 19% in 2031 and reaches what we expect to be a steady state. Comparing this future estimate to the values we found nowadays, there is an accentuated decrease in 2022, which is the translation of the covid-19 impact and the incorporation of the trends that it originated. Yet, it is still a value above the worldwide average and stands out in the industry in question.

Valuation

The Stock

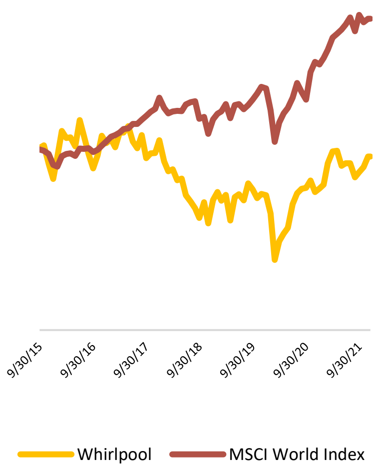
Whirlpool's stock is listed in the New York Stock Exchange (NYSE) and it has been there for over 40 years. For the purpose of this valuation, the MSCI World Index was considered as a proxy for the market performance, as it is a well-diversified market capitalization weighted stock that includes over 1500 companies around the world, measuring the equity performance in both emerging and developed economies, representing a broad cross-section of global markets. Considering Whirlpool sells in distinct geographies and that most of its main peers and

Exhibit 30: Whirlpool vs. MSCI World Index Returns



Source: *Bloomberg*

Exhibit 31: Cumulative Value of $100 Investment on 30/09/2015



Source: *Bloomberg and Own Calculations*

comparable companies are from outside the U.S., this index was therefore considered to be the most adequate.

Furthermore, in **exhibit 30** one can observe the monthly returns over the last 5 years for both Whirlpool Corp Index and MSCI World Index. It is therefore possible to conclude that, even though the company's stock is more volatile, its variations are in line with the market's proxy variations, which supports the assumption made when choosing the MSCI World Index. **Exhibit 31** shows the cumulative returns for both indexes if an investor placed $100 on each on 30/09/2015 and kept these positions open until today. Again, they do move in the same way, but Whirlpool's movements are more drastic, and it led to an accentuated decrease of returns from 2016 to 2018, weighting for the major difference we see in nowadays' returns.

In order to perform an accurate valuation of our company, the Discounted Cash Flow (DCF) approach was used, achieved through the WACC method. In this sense, for the WACC calculation an estimation of the cost of equity and cost of debt of the company was performed.

Comparable Companies

There were six main companies that stood out when choosing the main peers for our analysis were LG Electronics, Arçelik, Electrolux, Midea, Hisense Smart Home and Haier. Nevertheless, not all of them have household appliances as their main core business, like Whirlpool does. Due to this, even though the business model may be similar, and the industry the same, we are comparing companies from a different scale. In **exhibit 32** are evidenced the main characteristics of these companies, showing the variation across the market capitalizations and the Betas. There is no company within the U.S. whose core business is exclusively household appliances that are significant enough to be comparable, which led to this need of using bigger and overseas companies (mostly in Europe and Asia - China, Sweden, Germany, Japan specifically) that are more accurate competitors to Whirlpool.

Exhibit 32: Comparable companies' key information

	Market Cap	D/E	Beta Levered	Beta Unlevered
WHR	**$ 14,666.40**	**0.33**	**1.809**	**1.432**
LG	$ 17,915.40	0.34	1.138	0.896
Arçelik	$ 2,376.40	0.06	0.818	0.711
Electrolux	$ 7,191.40	0.06	1.396	1.329
Midea	$ 77,200.60	-0.03	1.018	1.042
Hisense	$ 2,425.00	-0.32	1.282	1.723
Haier	$ 41,632.00	-0.01	1.103	1.110

Source: *Bloomberg and Own Calculations*

WACC (Weighted Average Cost of Capital)

Finally, taking into account Whirlpool's current market capitalization of $14.666 million and its current Net Debt of $4,756, the calculation of the WACC delivered a value of 9.23%.

- Cost of Equity

Firstly, the Capital Asset Pricing Model (CAPM) was used to estimate the cost of equity of Whirlpool. The current risk-free (2021) was considered as the current yield of a U.S. 10Y government bond and its observed value is 1.46%, while the Market Risk Premium[27] of the United States is 5.5%, according to Statista. Hence, the only component left for own calculation was the Levered Beta.

A regression of the last 5 years monthly returns of Whirlpool's stock was ran against the MSCI World Index monthly returns for the same period. The outcome of this regression was a Beta of 1.809, which seems a reasonable value. However, the 95% confidence interval presents a wide window, which means that this conclusion may not be that accurate. The six Whirlpool's selected peers were considered in order to perform the same analysis and get a better picture of what really happens in this industry.

This way, **exhibit 32** presents the levered betas obtained from the monthly 5 years regressions and the unlevered betas for each, considering the corresponding capital structure. From our regressions, Whirlpool presents the highest levered beta. This has multiple explanations, being one the fact that by only being strong in one industry its systematic risk is higher, which does not happen for the competitors that have household appliances as a smaller part of their revenues. This way, since the peers do not operate only in this industry and are all from outside the U.S., the performed regression presents an R-squared higher than 50%, Whirlpool's beta was kept equal to the one obtained from the regression. The levered beta measures the sensitivity of a public security's performance in relation to the overall market, and, from **exhibit 30**, one can see that Whirlpool is considerably more volatile than the market.

Exhibit 33: Cost of Capital calculations

Levered Beta	1.809
Current risk-free rate	1.46%
Market Risk Premium (U.S.)	5.50%
Cost of Capital	**11.41%**

Source: *Own Calculations*

Furthermore, according to a study made by Pacra, the industry in which Whirlpool is inserted in has a moderate level of leverage, with a level around 39%. In fact, Whirlpool's current Debt-to-Equity ratio is 32%, which goes in line with what was just mentioned. This considered, we will keep a target D/E ratio equal to the current

[27] https://www.statista.com/statistics/664840/average-market-risk-premium-usa/

one, which makes the re-levered beta equal to the 1.809 previously obtained. As **exhibit 33** shows, the obtained cost of equity was 11.41%.

Exhibit 34: Bond issued by Whirlpool information

Price	$ 99.82
Issue Date	24/04/2021
Semiannual Coupons	1.20%
Maturity	15/05/2031
Future Value	$ 100
YTM	**3.57%**

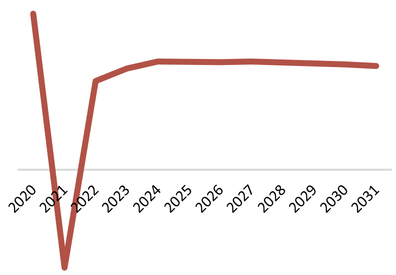
Source: *Markets Insider*

Exhibit 35: Cost of Debt calculations

YTM	3.57%
Probability of Default	1.02%
Loss Given Default	40.00%
Cost of Debt	**11.41%**

Source: S&P Rating and *Own Calculations*

Exhibit 36: Expected Free Cash Flow



Source: *Own Calculations*

- Cost of Debt

In order to estimate the cost of debt, a recently issued bond by Whirlpool with 10 years of maturity (2021/31) was considered, with semiannual coupon payments of 1.20%. As seen in **exhibit 34**, this bond has a YTM of 3.57%.

Since Whirlpool has a credit rating of BBB, according to S&P, we retrieved the probability of default value from the credit rating company website, which is 1.02%. Furthermore, loss given default is assumed to be 40%[28] for the consumer discretionary industry (according to S&P) and this industry is considered a rather fitting one for Whirlpool's operations. Overall, this led to a cost of debt estimation of 3.16% (**exhibit 35**).

Free Cash Flow Model

The final value of Whirlpool Corporation was calculated through the DCF method, executed by discounting the forecasted FCF at the WACC. As previously stated, Whirlpool targets a specific capital structure, in this case a D/E ratio of 0.32. Therefore, it was concluded that the Discounted Cash Flows method was the most appropriate for this concrete case.

As presented in **exhibit 36**, for the forecasted period ending in 2031, the forecasted FCF demonstrates a rather stable trend for the upcoming years. It suffered a huge drop from 2020 to 2021 due to the pandemic, yet it is expected to recover faster than most companies for the next 2 years, considering the trends that drive this industry. Since the FCF is the difference between the Total Core Result and the Change in Core Invested Capital, the shape of the graph is explained by the increase in revenues and strong working capital management, as well as a significant investment in CAPEX, all in a short-term period. For the long-run, Whirlpool shows a considerably stable forecasted FCF.

[28] https://www.spglobal.com/marketintelligence/en/news-insights/blog/corporate-credit-risk-trends-in-developing-markets-a-loss-given-default-lgd-perspective

Terminal Value

The terminal growth rate is the rate at which Total Revenues grow in the steady state, which in our model is 4.7%. Not only it is showed in our forecasted income statement, as well as it is in accordance with the nominal long term growth rate of the economy, estimated with a 2.2% inflation rate in the long-run and 2.42% GDP real growth rate in the long-run (seen in **exhibit 37** as a weighted average of the GDP growth rate of the different geographies, weighted according to each one's revenues volume).

Exhibit 37: Weighted Average of GDP Growth

	GDP	Weight
North America	1.70%	57.18%
EMEA	1.72%	21.93%
Latin America	5.40%	14.15%
Asia	4.60%	6.73%

Source: *Own Calculations and Statista*

Another relevant estimation is the Terminal Value (TV), which reflects a steady-state performance of the Core Business. For our model this state is reached close to 2031, so our forecasts go up to 10 years. Our research has led us to the terminal value of 25 167.40 million dollars, after applying the terminal value formula to the last FCF forecasted (2031). Discounting the Free Cash Flows from each year at the WACC to the current year, we get a Value of the Core Business of 11 374.03 million of dollars.

Lastly, the non-core business was valued at book value, which is assumed as constant from 2021 on.

As **Exhibit 38** shows, the estimated equity value is 16 587.62 million dollars and Whirlpool has 62.7 million shares outstanding. This way, Whirlpool's target share price as of 31/12/2021 is $270.6.

Exhibit 38: Whirlpool's Valuation summarized

VALUATION	
Value of Core Business	$ 18,017.05
Value of Non-core Business	$ 6,073.33
Enterprise Value	$ 24,090.38
Net Debt	$ 7,122.21
Equity Value	$ 16,968.17
# Shares Outstanding	62.7
Share Price	**$ 270.6**

Source: *Own Calculations and Bloomberg*

Multiples Valuation

In order to consolidate our findings, we performed a multiples valuation based on comparable companies, the same ones considered for the beta's regression (the so-called comps). Considering the variety among our comps market cap, main industry and capital structure, a broad set of multiples was chosen to perform this analysis.

Exhibit 39: Industry key multiples

	P/E 2020	P/E 5Y	EV/EBITDA 2020	EV/EBITDA 5Y	Forward EV/EBITDA	Forward P/E	EV/Revenues 2020
LG Electronics	12.36x	12.36x	4.95x	4.95x	0.37x	6.81x	0.46x
Arçelik	7.21x	12.53x	4.89x	6.87x	5.41x	8.64x	0.63x
Electrolux	13.79x	14.47x	5.08x	6.25x	5.34x	11.98x	0.45x
Midea	20.05x	16.18x	22.97x	13.86x	13.81x	15.18x	2.53x
Hisense	8.66x	5.78x	6.41x	12.69x	5.43x	11.12x	0.52x
Haier	21.80x	16.63x	13.08x	11.10x	12.32x	18.33x	1.13x

Source: *Bloomberg*

As shown in **exhibit 39**, there are three important periods at which our multiples must be considered. The last completed year (2020), the past 5 years - which were valued as a median of the five in order to smooth the impact of Covid-19 and a forward expectation for 2022, the target year of our valuation, based on estimations retrieved from Bloomberg.

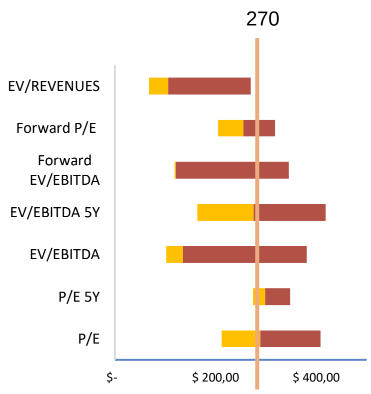
Exhibit 40: Whirlpool 2022 Forecasted Values

WHIRLPOOL 2022	
Revenues	$ 23,914.92
EBITDA	$ 2,715.90
EPS	$ 22.10
Debt	$ 7,122.21
Outstanding shares	62.7

Source: *Own Calculations*

Lastly, considering the main statistical approaches (minimum, quartile 1, median, quartile 3 and maximum) for each multiple, the 6 comps were combined into single multiple for each and by applying those multiples to Whirlpool's forecasted values for 2022 (**exhibit 40**), a football field valuation was created. As presented in **exhibit 41**, one can conclude that even though the multiples analysis incorporates a wide diversification of ratios and companies, the 31/12/2022 share price of $270.6 estimated through the DCF method lies inside all the fields.

Exhibit 41: Football Field Valuation



Source: *Own Calculations*

Sensitivity Analysis

Lastly, a sensitivity analysis was essentially to be performed since Whirlpool faces a future of rather uncertainty and, after what unexpectedly happen in 2020 and went on for more time than predicted, the share price sensitivity to small changes in the environment must be considered. Being in the household appliances industry, the good can rapidly become bad. Considering mainly the digitalization and home-office trends, people are expected to have an increased desire for a smart and comfortable home over the next couple of years, increasing Whirlpool's revenues and market share, while being more cost-efficient. On the other hand, another lockdown or other unexpected event that decreases household's available income will also rapidly have a negative and way different impact from the predicted on Whirlpool's share price.

Likewise, four sensitivity analysis were performed. The first three were meant to get to the WACC values that could arise from the different scenarios, while the last one was the most important to consider – the share price variation according to the steady-state growth rate and the WACC. By varying the target D/E and the levered beta we got the possible re-levered betas and consequently by varying the betas and the cost of debt we got to the most likely WACC values in the different scenarios. Lastly, **exhibit 42** shows that the share price is highly sensitive to these parameters, rapidly going from $190.19 to $428.65 by varying the growth rate or the WACC less than 1.5%.

Finally, taking into the account the pandemic we have lived in for the last 2 years, it is relevant to affirm that the results and conclusions of this valuation are possible assuming an economic recovery starting in 2022, eliminating the key risks and maximizing the positive impact of the industry's trends.

Exhibit 42: Sensitivity analysis – Share price varying with different WACC and Growth levels

	8.00%	8.55%	9.10%	9.65%	10.20%	10.75%
4.00%	$ 321.56	$ 282.71	$ 252.18	$ 227.55	$ 207.23	$ 190.19
4.25%	$ 337.26	$ 294.27	$ 260.97	$ 234.39	$ 212.67	$ 194.58
4.50%	$ 355.21	$ 307.26	$ 270.70	$ 241.89	$ 218.58	$ 199.32
4.75%	$ 375.93	$ 321.96	$ 281.56	$ 250.16	$ 225.03	$ 204.46
5.00%	$400.09	$ 338.73	$ 293.74	$ 259.32	$ 232.11	$ 210.04
5.25%	$ 428.65	$ 358.04	$ 307.51	$ 269.52	$ 239.90	$ 216.13

Source: *Own Calculations*

Major Risks

In this chapter, after the valuation and key aspects of the organization were presented, now it is time to discuss the possible turn out of events in the worst possible manner, that could put a stake the future profitability of the organization.

The whole world has been in lockdown, came out of it, went back in, and came back to the outside world again. With the vaccines, the higher safety measures, the alternative ways the world has found to continue with life in what is now called a "new normal" were implemented. Yet, all these measures are seen as temporary, and the vaccine did not solve much of problems, as it doesn't have effect on the recent dangerous variants that we are all facing. One of Whirlpool's main risks is therefore the comeback of the lockdowns, both in terms of production, but as people tend to spend less while spending all their time at home, safeguarding for the event of losing their jobs or part of their salary. The pandemic has resulted in higher risks for the different geographical areas for Whirlpool to deliver its products and services. In addition, Whirlpool faces a problem regarding inflation, as it has many exposure to this factor across the globe, such is the case of Latin America, most recently.

Other less significant threats to Whirlpool include environmental pollution, something that this organization is fully aware of, and attempting to create, at all costs, new products and ways of being fully environmentally friendly. But that is a challenge to us all. The most obvious challenge is, due to high competition levels that one can verify in such an industry, is the loss of customers due to tastes and preferences, and the management team of Whirlpool spends plenty of money and resources so that it can stay in the leading position. Lastly, with Brexit, the situation in Europe became unstable, with a feeling of uncertainty in the air, a threat to Whirlpool, as a great deal of revenues come from such a market.

Finally, taking into the account the pandemic we have lived in for the last 2 years, it is relevant to affirm that the results and conclusions of this valuation are possible assuming an economic recovery starting in 2022, eliminating the key risks and maximizing the positive impact of the industry's trends. Yet, if the economy had a larger boost than expected the recommendation would change to **buy** and if it only recovered in 2023 instead of boosting by then, it would change to **sell**.

Final Recommendation

To sum up everything that has been stated so far, and by performing a careful evaluation, we arrived at a final estimation of Whirlpool's share price with the value of $270.6. Considering that it is currently trading at $238.28 per share, we can reach the possible conclusion that Whirlpool's price per share is currently undervalued, yet, not by a significant value for us to conclude with such certainty. The shareholder's return would then be 7.72%, considering it is bought on the beginning of the year and sold in 31-Dec-2022.

Even though this value is higher than the maximum daily price observed in the last 12 months, Whirlpool Corporation is a cyclical organization, which means that its share price is closely linked to the state of the economy at each moment.

Moreover, the sensitivity analysis allowed to confirm the huge uncertainly that is around the future of the company and the industry and showed how a small change could make the share value extremely different.

Therefore, our recommendation at the light of the performed valuation, is to **Hold**.

Appendix

Forecasted Income Statement

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Core Business														
Region 1: North America														
Net Sales	$ 11 359,98	$ 11 434,64	$ 11 284,48	$ 13 016,16	$ 13 675,29	$ 14 222,13	$ 14 732,69	$ 15 261,58	$ 15 809,46	$ 16 377,01	$ 16 964,93	$ 17 573,96	$ 18 204,85	$ 18 858,39
Average price per product	$ 410,05	$ 433,02	$ 433,02	$ 449,04	$ 459,36	$ 469,47	$ 479,80	$ 490,35	$ 501,14	$ 512,17	$ 523,44	$ 534,95	$ 546,72	$ 558,75
Inflation Rate USD	1,90%	2,30%	1,40%	3,70%	2,30%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%
#products sold	27,704	26,407	26,060	$ 28,987	$ 29,770	$ 30,294	$ 30,706	$ 31,124	$ 31,547	$ 31,976	$ 32,411	$ 32,852	$ 33,298	$ 33,751
GDP growth	2,94%	2,1%	-3,41%	5,97%	5,20%	2,20%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%
Home Office (% of workforce)	21,2%	21,2%	52,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%	45,0%
% Growth		0,0%	30,8%	-7,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Region 2: EMEA														
Net Sales	$ 4 628,14	$ 4 287,99	$ 4 280,32	$ 4 888,99	$ 5 244,39	$ 5 482,51	$ 5 708,46	$ 5 934,39	$ 6 169,27	$ 6 413,44	$ 6 667,27	$ 6 931,15	$ 7 205,47	$ 7 490,66
Average price per product	$ 230,82	$ 214,20	$ 214,20	$ 222,12	$ 227,23	$ 232,23	$ 237,34	$ 242,56	$ 247,90	$ 253,35	$ 258,92	$ 264,62	$ 270,44	$ 276,39
Inflation Rate USD	1,90%	2,30%	1,40%	3,70%	2,30%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%
#products sold	20,05	20,02	19,98	22,01	23,08	23,61	24,05	24,47	24,89	25,31	25,75	26,19	26,64	27,10
GDP growth	2,32%	1,74%	-5,88%	5,10%	4,44%	2,29%	1,88%	1,72%	1,72%	1,72%	1,72%	1,72%	1,72%	1,72%
Home Office (% of workforce)	24%	24%	48%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
% Growth		0%	24%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Region 3: Latin America														
Net Sales	$ 3 576,29	$ 3 267,04	$ 2 529,28	$ 3 080,96	$ 3 385,04	$ 3 659,98	$ 3 964,52	$ 4 270,54	$ 4 600,17	$ 4 955,25	$ 5 337,74	$ 5 749,74	$ 6 193,56	$ 6 671,62
Average price per product	$ 302,10	$ 270,36	$ 270,36	$ 280,36	$ 286,81	$ 293,12	$ 299,57	$ 306,16	$ 312,90	$ 319,78	$ 326,82	$ 334,01	$ 341,35	$ 348,86
Inflation Rate USD	1,90%	2,30%	1,40%	3,70%	2,30%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%
#products sold	11,84	12,08	9,36	10,99	11,80	12,49	13,23	13,95	14,70	15,50	16,33	17,21	18,14	19,12
GDP growth	-3,06%	-2,16%	-16,79%	15,16%	7,40%	5,79%	5,99%	5,40%	5,40%	5,40%	5,40%	5,40%	5,40%	5,40%
Home Office (% of workforce)	3%	15%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
% Growth		12%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Region 4: Asia														
Net Sales	$ 1 472,59	$ 1 429,33	$ 1 361,92	$ 1 497,05	$ 1 610,20	$ 1 721,32	$ 1 840,12	$ 1 967,11	$ 2 102,86	$ 2 247,98	$ 2 403,12	$ 2 568,96	$ 2 746,25	$ 2 935,78
Average price per product	$ 165,26	$ 160,69	$ 160,69	$ 166,63	$ 170,47	$ 174,22	$ 178,05	$ 181,97	$ 185,97	$ 190,06	$ 194,24	$ 198,52	$ 202,88	$ 207,35
Inflation Rate USD	1,90%	2,30%	1,40%	3,70%	2,30%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%
#products sold	8,91	8,90	8,48	8,98	9,45	9,88	10,33	10,81	11,31	11,83	12,37	12,94	13,54	14,16
GDP growth	4,06%	3,90%	-3,56%	6,00%	5,14%	4,60%	4,60%	4,60%	4,60%	4,60%	4,60%	4,60%	4,60%	4,60%
TOTAL NET SALES	**$ 21 037,00**	**$ 20 419,00**	**$ 19 456,00**	**$ 22 483,16**	**$ 23 914,92**	**$ 25 085,94**	**$ 26 245,79**	**$ 27 433,62**	**$ 28 681,76**	**$ 29 993,68**	**$ 31 373,05**	**$ 32 823,81**	**$ 34 350,13**	**$ 35 956,44**
growth		-2,94%	-4,72%	15,56%	6,37%	4,90%	4,62%	4,53%	4,55%	4,57%	4,60%	4,62%	4,65%	4,68%
Cost of Goods Sold	$ 17 500,00	$ 16 886,00	$ 15 606,00	$ 17 981,38	$ 19 205,52	$ 20 203,10	$ 21 204,75	$ 22 230,51	$ 23 311,85	$ 24 452,14	$ 25 654,94	$ 26 924,07	$ 28 263,59	$ 29 677,83
#products sold	68,50	67,41	63,87	70,97	74,10	76,27	78,33	80,35	82,44	84,61	86,86	89,20	91,62	94,14
#manufactoring locations	41	36	35	35	35	35	35	35	35	35	35	35	35	35
#employees	92000	77000	78000	79170	80358	81563	82786	84028	85289	86568	87866	89184	90522	91880
#employees per location	2244	2139	2229	2262	2296	2330	2365	2401	2437	2473	2510	2548	2586	2625
#products sold per employee (in millions)	0,0007	0,0009	0,0008	0,0009	0,0009	0,0009	0,0009	0,0010	0,0010	0,0010	0,0010	0,0010	0,0010	0,0010
COGS per product sold	$ 255,46	$ 250,52	$ 244,32	$ 253,36	$ 259,19	$ 264,89	$ 270,72	$ 276,68	$ 282,76	$ 288,99	$ 295,34	$ 301,84	$ 308,48	$ 315,27
Inflation Rate USD	1,90%	2,30%	1,40%	3,70%	2,30%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%	2,20%
Selling, General and Administrative	$ 2 189,00	$ 2 142,00	$ 1 877,00	$ 2 742,95	$ 2 917,62	$ 3 060,48	$ 3 201,99	$ 3 346,90	$ 3 499,17	$ 3 659,23	$ 3 827,51	$ 4 004,51	$ 4 190,72	$ 4 386,69
% of net sales	10%	10%	10%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
Total Core Expenses	$ 19 689,00	$ 19 028,00	$ 17 483,00	$ 20 724,33	$ 22 123,14	$ 23 263,58	$ 24 406,73	$ 25 577,41	$ 26 811,03	$ 28 111,37	$ 29 482,45	$ 30 928,57	$ 32 454,30	$ 34 064,52
Core Result Before Taxes	$ 1 348,00	$ 1 391,00	$ 1 973,00	$ 1 758,84	$ 1 791,78	$ 1 822,36	$ 1 839,06	$ 1 856,21	$ 1 870,73	$ 1 882,31	$ 1 890,60	$ 1 895,24	$ 1 895,83	$ 1 891,93
Statutory Taxes	$ 283,08	$ 292,11	$ 414,33	$ 457,30	$ 465,86	$ 473,81	$ 478,15	$ 482,61	$ 486,39	$ 489,40	$ 491,56	$ 492,76	$ 492,92	$ 491,90
% of Core Result Before Taxes	21,0%	21,0%	21,0%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
Core Tax Ajustments	$ -146,00	$ -91,00	$ 57,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00	$ -60,00
Core Result Total	**$ 1 210,92**	**$ 1 189,89**	**$ 1 501,67**	**$ 1 361,54**	**$ 1 385,92**	**$ 1 408,54**	**$ 1 420,90**	**$ 1 433,59**	**$ 1 444,34**	**$ 1 452,91**	**$ 1 459,04**	**$ 1 462,48**	**$ 1 462,91**	**$ 1 460,03**
Non Core Business														
Restructuring Costs	$ 247,00	$ 188,00	$ 288,00	$ 100,00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Intangible Amortization	$ 75,00	$ 69,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00	$ 62,00
Impairment of Goodwill and Other Intangibles	$ 747,00	$ -	$ 7,00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
(Gain) Loss on sale and disposal of businesses	$ -	$ -437,00	$ -7,00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest and sundry (income) expense	$ 108,00	$ -168,00	$ -21,00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non Core Result Before Taxes	$ -1 177,00	$ 348,00	$ -329,00	$ -162,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00	$ -62,00
Statutory Taxes	$ -247,17	$ 73,08	$ -69,09	$ -42,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12	$ -16,12
% of Non Core Result Before Taxes	21,00%	21,00%	21,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%
Non-Core Tax Ajustments	$ 288,00	$ 119,00	$ 21,00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OCI	$ -345,00	$ 77,00	$ -191,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00	$ -153,00
Non Core Result Total	**$ -1 562,83**	**$ 232,92**	**$ -471,91**	**$ -272,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**	**$ -198,88**
Financing Business														
Interest expense	$ 192,00	$ 187,00	$ 189,00	$ 198,65	$ 186,27	$ 194,05	$ 199,98	$ 204,85	$ 210,00	$ 215,34	$ 220,75	$ 226,44	$ 232,32	$ 238,40
% Debt of previous year		2,69%	2,76%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%	2,72%
Financing Result Before Taxes	$ -192,00	$ -187,00	$ -189,00	$ -198,65	$ -186,27	$ -194,05	$ -199,98	$ -204,85	$ -210,00	$ -215,34	$ -220,75	$ -226,44	$ -232,32	$ -238,40
Statutory Taxes	$ -40,32	$ -39,27	$ -39,69	$ -51,65	$ -48,43	$ -50,45	$ -51,99	$ -53,26	$ -54,60	$ -55,99	$ -57,40	$ -58,87	$ -60,40	$ -61,98
% of Non Core Result Before Taxes	21,00%	21,00%	21,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%	26,00%
less: comprehensive income available to noncontrolling intere	$ 26,00	$ 14,00	$ -8,00	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67	$ 10,67
Financing Result Total	**$ -177,68**	**$ -161,73**	**$ -141,31**	**$ -157,67**	**$ -148,50**	**$ -154,27**	**$ -158,65**	**$ -162,26**	**$ -166,06**	**$ -170,02**	**$ -174,02**	**$ -178,23**	**$ -182,58**	**$ -187,08**
Total comprehensive income	**$ -529,59**	**$ 1 261,08**	**$ 888,45**	**$ 930,99**	**$ 1 038,54**	**$ 1 055,40**	**$ 1 063,37**	**$ 1 072,46**	**$ 1 079,39**	**$ 1 084,01**	**$ 1 086,14**	**$ 1 085,37**	**$ 1 081,45**	**$ 1 074,06**

Forecasted Balance Sheet

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Core Business														
Operating Cash	$ 420,74	$ 408,38	$ 389,12	$ 1 124,16	$ 1 195,75	$ 1 254,30	$ 1 312,29	$ 1 371,68	$ 1 434,09	$ 1 499,68	$ 1 568,65	$ 1 641,19	$ 1 717,51	$ 1 797,82
% of Sales	2%	2%	2%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Accounts receivable	$ 2 210,00	$ 2 198,00	$ 3 109,00	$ 2 391,06	$ 2 543,33	$ 2 667,86	$ 2 791,21	$ 2 917,54	$ 3 050,27	$ 3 189,80	$ 3 336,49	$ 3 490,78	$ 3 653,10	$ 3 823,99
Average Collection Period	38,34	39,29	58,33	38,82	38,82	38,82	38,82	38,82	38,82	38,82	38,82	38,82	38,82	38,82
Inventories	$ 2 533,00	$ 2 438,00	$ 2 187,00	$ 2 519,88	$ 2 691,43	$ 2 831,23	$ 2 971,60	$ 3 115,35	$ 3 266,89	$ 3 426,68	$ 3 595,24	$ 3 773,10	$ 3 960,81	$ 4 159,00
Average Holding Period	52,83	52,70	51,15	51,15	51,15	51,15	51,15	51,15	51,15	51,15	51,15	51,15	51,15	51,15
Prepaid and other current assets	$ 839,0	$ 810,0	$ 795,0	$ 902,4	$ 959,9	$ 1 006,9	$ 1 053,4	$ 1 101,1	$ 1 151,2	$ 1 203,9	$ 1 259,2	$ 1 317,5	$ 1 378,7	$ 1 443,2
% of Sales	3,99%	3,97%	4,09%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%	4,01%
Net property and equipment	$ 3 414,0	$ 3 301,0	$ 3 199,0	$ 4 128,9	$ 4 538,7	$ 4 823,2	$ 5 092,9	$ 5 357,7	$ 5 632,2	$ 5 916,7	$ 6 211,7	$ 6 517,6	$ 6 835,0	$ 7 164,4
Land	$ 102,0	$ 97,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0	$ 92,0
Buildings	$ 1 593,0	$ 1 540,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0	$ 1 517,0
Machinery and Equipment	$ 7 909,0	$ 8 108,0	$ 8 370,0	$ 9 299,9	$ 9 709,7	$ 9 994,2	$ 10 263,9	$ 10 528,7	$ 10 803,2	$ 11 087,7	$ 11 382,7	$ 11 688,6	$ 12 006,0	$ 12 335,4
#products sold	68,50	67,41	63,87	70,97	74,10	76,27	78,33	80,35	82,44	84,61	86,86	89,20	91,62	94,14
machinery and eq. per product sold	$ 115,5	$ 120,3	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0	$ 131,0
Accumulated depreciation	$ -6 190,0	$ -6 444,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0	$ -6 780,0
Right of use assets	$ -	$ 921	$ 989	$ 1 078	$ 1 147	$ 1 203	$ 1 259	$ 1 316	$ 1 376	$ 1 439	$ 1 505	$ 1 575	$ 1 648	$ 1 725
% of Sales		4,51%	5,08%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Other noncurrent assets	$ 299,0	$ 358,0	$ 240,0	$ 330,4	$ 351,4	$ 368,6	$ 385,6	$ 403,1	$ 421,4	$ 440,7	$ 461,0	$ 482,3	$ 504,7	$ 528,3
% of Sales	1,42%	1,75%	1,23%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%	1,47%
Accounts payable	$ 4 487,0	$ 4 547,0	$ 4 834,0	$ 4 610,4	$ 4 924,3	$ 5 180,1	$ 5 436,9	$ 5 699,9	$ 5 977,2	$ 6 269,5	$ 6 577,9	$ 6 903,3	$ 7 246,8	$ 7 609,4
Average Payable Period	93,6	98,3	113,1	93,6	93,6	93,6	93,6	93,6	93,6	93,6	93,6	93,6	93,6	93,6
Accrued expenses	$ 690,0	$ 652,0	$ 637,0	$ 730,5	$ 779,8	$ 820,0	$ 860,3	$ 901,6	$ 945,0	$ 990,9	$ 1 039,2	$ 1 090,2	$ 1 144,0	$ 1 200,7
% of Total Expenses	3,5%	3,4%	3,6%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%
Accrued advertising and promotions	$ 827,0	$ 949,0	$ 831,0	$ 829,0	$ 884,9	$ 930,5	$ 976,3	$ 1 023,1	$ 1 072,4	$ 1 124,5	$ 1 179,3	$ 1 237,1	$ 1 298,2	$ 1 362,6
% of Total Expenses	4,20%	4,99%	4,75%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Employee compensation	$ 393,0	$ 450,0	$ 648,0	$ 473,1	$ 480,2	$ 461,9	$ 486,1	$ 490,4	$ 493,8	$ 504,9	$ 511,4	$ 518,5	$ 527,0	$ 534,6
#employees	92000	77000	78000	79170	80358	81563	82786	84028	85289	86568	87866	89184	90522	91880
Employee compensation per employee	$ 0,0070	$ 0,0058	$ 0,0050	$ 0,0060	$ 0,0060	$ 0,0057	$ 0,0059	$ 0,0058	$ 0,0058	$ 0,0058	$ 0,0058	$ 0,0058	$ 0,0058	$ 0,0058
Other current liabilities	$ 811,0	$ 752,0	$ 896,0	$ 621,7	$ 663,7	$ 697,9	$ 732,2	$ 767,3	$ 804,3	$ 843,3	$ 884,5	$ 927,9	$ 973,6	$ 1 021,9
% of Total Expenses	4,12%	3,95%	5,12%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Other noncurrent liabilities	$ 463,0	$ 612,0	$ 732,0	$ 487,3	$ 520,2	$ 547,1	$ 573,9	$ 601,5	$ 630,5	$ 661,1	$ 693,3	$ 727,3	$ 763,2	$ 801,0
% of Total Expenses	2,35%	3,22%	4,19%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Total Core Invested Capital	$ 2 045	$ 2 472	$ 2 330	$ 4 723	$ 5 175	$ 5 518	$ 5 800	$ 6 099	$ 6 409	$ 6 722	$ 7 052	$ 7 393	$ 7 745	$ 8 111
Non-Core Business														
Assets held for sale	$ 818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Goodwill	$ 2 451	$ 2 440	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496	$ 2 496
Other intangibles	$ 2 296	$ 2 225	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194	$ 2 194
Deferred income taxes	$ 1 989	$ 2 238	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217	$ 2 217
Liabilities held for sale	$ 489	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pension benefits	$ 637	$ 542	$ 516	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565	$ 565
Postretirement benefits	$ 318	$ 322	$ 166	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269	$ 269
										?				
Total Non-Core Invested Capital	$ 6 110	$ 6 039	$ 6 225	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073	$ 6 073
Total Invested Capital	$ 8 154,74	$ 8 511,38	$ 8 555,12	$ 10 796,56	$ 11 247,86	$ 11 591,24	$ 11 873,69	$ 12 172,02	$ 12 481,97	$ 12 795,37	$ 13 124,99	$ 13 465,96	$ 13 818,20	$ 14 184,50
Financing														
NET DEBT														
Excess of Cash	$ 1 077,26	$ 1 543,62	$ 2 534,88	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Debt	$ 6 941,00	$ 6 860,00	$ 7 291,00	$ 6 836	$ 7 122	$ 7 340	$ 7 518	$ 7 707	$ 7 904	$ 8 102	$ 8 311	$ 8 527	$ 8 750	$ 8 982
Net Debt	$ 5 864	$ 5 316	$ 4 756	$ 6 836	$ 7 122	$ 7 340	$ 7 518	$ 7 707	$ 7 904	$ 8 102	$ 8 311	$ 8 527	$ 8 750	$ 8 982
% Total Invested Capital	0,7	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
Common Equity	$ 2 291,00	$ 3 195,00	$ 3 799,00	$ 3 960,11	$ 4 125,65	$ 4 251,60	$ 4 355,20	$ 4 464,62	$ 4 578,31	$ 4 693,26	$ 4 814,17	$ 4 939,23	$ 5 068,43	$ 5 202,79
D/E	2,56	1,66	1,25	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73	1,73
Transactions to shareholders		$ -357,08	$ -284,45	$ -769,88	$ -873,00	$ -929,45	$ -959,77	$ -963,03	$ -965,71	$ -969,05	$ -965,24	$ -960,30	$ -952,25	$ -939,71
Payout Ratio		28,3%	32,0%	82,7%	84,1%	88,1%	90,3%	89,8%	89,5%	89,4%	88,9%	88,5%	88,1%	87,5%
	$ 8 154,74	$ 8 511,38	$ 8 555,12	$ 10 796,56	$ 11 247,86	$ 11 591,24	$ 11 873,69	$ 12 172,02	$ 12 481,97	$ 12 795,37	$ 13 124,99	$ 13 465,96	$ 13 818,20	$ 14 184,50

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Report Recommendations

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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