

**Advance Auto Parts Inc (AAP)**

Stock Rating:

**BUY**

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## Investment Thesis

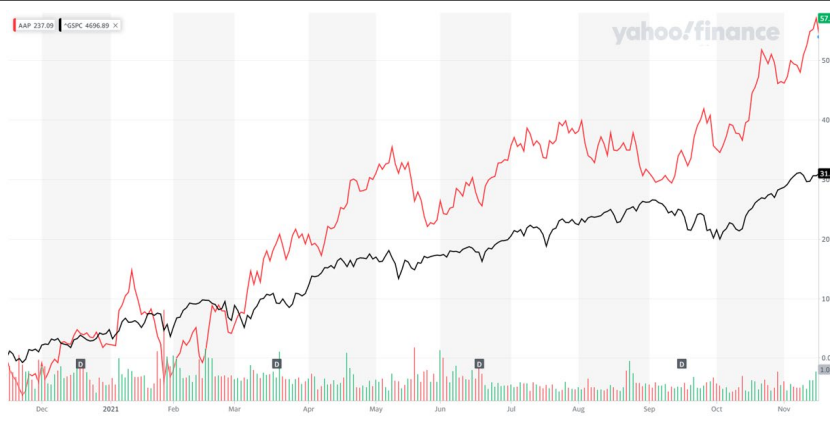
We recommend a **Buy** rating for Advance Auto Parts. AAP will continue to experience growth while the new car supply chain proceeds to struggle. Advance Auto Parts' brand recognition will drive their growth in the expanding industry. This stock offers a 22% upside for investors.

### Drivers of Thesis

- **Advance Auto Parts will continue to be a leader in the auto parts industry.** There are few companies that dominate this industry and will continue to generate most of the industry's revenue.
- **Auto parts demand is extremely high due to supply chain shortages.** The disrupted semiconductor chip supply chain is causing inflated prices for new and used cars which has led to more consumption in the auto parts industry.

### Risk of Thesis

- **Electric Vehicle popularity may hinder future revenue growth for the auto parts industry.** The auto parts industry fears that electric vehicles are becoming increasingly more popular. Electric vehicles require less maintenance than traditional cars and could cause harm to the auto parts industry.
- **Advance Auto Parts is in an extremely competitive industry.** Although there are not many major players in the auto parts industry, there are very little differences in the products and services they each provide.



**Current Price: \$238**

**Price Target: \$280 - \$290**

### Forecast Outcome

**Discounted Cash Flow: \$282.45**

### Company Overview

Advance Auto Parts (AAP) is an auto part retailer headquartered in Raleigh, North Carolina. They provide their products and services to both DIY and professional customers. Founded in 1932, AAP has roughly 4,976 stores located in the United States and Canada.

### Statistical Highlights

#### Price Data

Current Price	\$238.00
52 Week High	\$240.96
52 Week Low	\$142.59

#### Key Statistics

Market Cap	16.36B
Shares Outstanding	68,748 (Thousand)
Price to Earnings	26.37
Beta	1.42
WACC	6.71%
EPS 2020	7.17
Revenue 2020	\$10,106,321 (Thousand)
Net Income 2020	\$493,021 (Thousand)

#### Key statistics

ROA	7.86%
ROE	13.85%
Gross Profit Margin	46.82%

#### Earnings Estimates

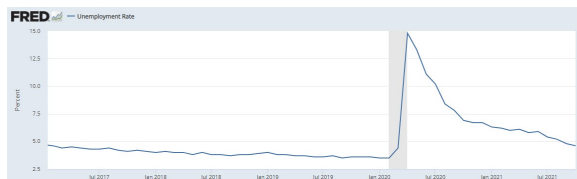
EPS	2021	2022	2023
Forecast	8.74	9.22	9.35
Consensus	11.58	12.81	14.62

## Economic Analysis

### Unemployment

According to the Bureau of Labor Statistics, there were 531,000 jobs added in October of 2021 which has brought the unemployment rate down to 4.6% - the lowest it has been since the beginning of the Coronavirus Pandemic<sup>1</sup>. During the height of the pandemic unemployment reached as high as 14.8%. This drastic decline in the unemployment rate has shown the swift economic recovery nationwide.

Although unemployment rates are at a yearly low, Goldman Sachs forecasts this trend will continue through 2022. They project that by the end of next year unemployment may drop to as low as 3.5% which would be the lowest rate over the last 50 years<sup>2</sup>.



Source: U.S. Bureau of Labor Statistics<sup>3</sup>

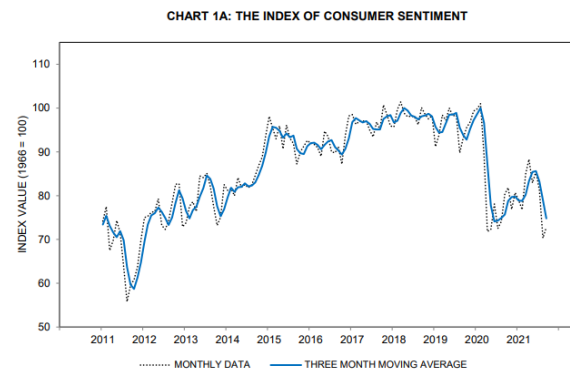
Unemployment rates generally play a significant role in discretionary spending. When more individuals are employed, they are more likely to buy goods and services that they wouldn't otherwise. Although this is usually a positive indicator, there are other economic factors that are pointing towards a potential downturn for the consumer discretionary sector.

### University of Michigan Consumer Sentiment Index

The University of Michigan Consumer Sentiment Index (MCSI) measures the optimism consumers have regarding the outlook of the economy. It is very similar to the Consumer Confidence Index (CCI); they both are leading

indicators used to predict consumer spending activity and assist in determining the current state of the economy. The MCSI correlates with how much consumers are willing to spend on discretionary products and services<sup>4</sup>. MCSI is an extremely important indicator for consumer discretionary companies due to the cyclical nature of the sector and the products and services that those companies provide.

In the middle of 2021, the MCSI began to recover towards pre pandemic levels, however, since then it has fallen to its lowest level since 2011<sup>5</sup>. This decline shows that consumers have bearish sentiment towards the future of the economy and may lead to a decrease in consumer discretionary spending over the next year.



Source: Surveys of Consumers University of Michigan<sup>6</sup>

According to the Michigan Surveys of Consumers chief economist, one-in-four consumers cited inflation as the cause of reductions in their standards of living<sup>7</sup>. In addition, they are fearful that there have been no policies put in place to reduce the damage from surging inflation. Policy regarding inflation control in the upcoming months will be a driving force in how optimistic consumers will be regarding the economy.

### Consumer Price Index/Inflation

The Consumer Price Index (CPI) is a measure of the average change in the prices paid by urban consumers for a market basket of consumer goods and services over time. Changes in the CPI indicate differences in the average cost of living and provides a useful benchmark regarding inflation.

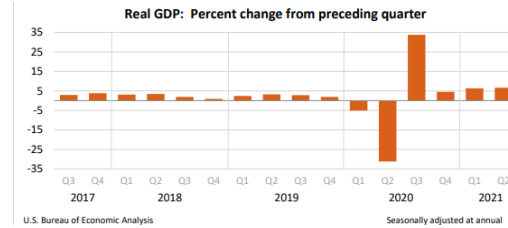
Since the height of the Coronavirus Pandemic, the CPI has rapidly increased. As of October 2021, the CPI has a 0.8% increase month over month and a 6.2% increase from last year<sup>8</sup>. The drastic increase of consumer cost of living may cause an increase in consumer spending on food and other necessities while leading to a decrease in consumer spending for discretionary goods and services.

High inflation rates have been recognized by most across the country which has caused President Biden to say that lowering inflation rates his “top priority”<sup>9</sup>. Over the next year we expect inflation to stay high, although we believe the CPI’s yearly growth will begin to stabilize in 2024 to revert near pre-pandemic levels between 1.5 and 2.5%.

### **Real Gross Domestic Product (GDP)**

Real Gross Domestic Product (GDP) is an inflation-adjusted measurement of goods and services produced in the United States. The real GDP allows for better year to year comparison as it is an adjusted figure opposed to nominal GDP which does not factor in inflation which is a significant variable in the current economic outlook.

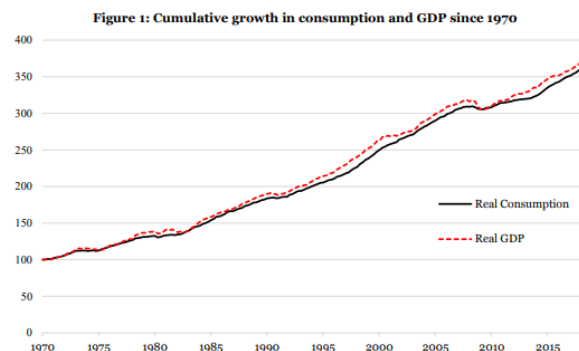
Although GDP has increased since the height of the pandemic, recent inflation concerns may hinder its future growth. In addition, the pandemic has caused supply chain issues nationwide which could also slow the growth of Real GDP. Due to these concerns, we believe Real GDP will slow down from its growth rate in the beginning of 2021 and revert towards its historical growth rate near 2% to 3% annually<sup>10</sup>.



Source: Bureau of Economic Analysis<sup>11</sup>

Once supply chain issues are resolved we expect to return to average levels. Our target rate after 3 years aligns with the 2017-2019 real GDP growth shown below. Real GDP consistently had an annual growth rate between 1.3% and 3% after the 2008 recession and prior to the 2020 Coronavirus pandemic.

The consumer discretionary sector is heavily dependent on the willingness of consumers to spend money on non-essential items. Increases in Real GDP can indicate positive consumer spending trends which would lead to an expansion in the consumer discretionary sector.



Source: Bureau of Economic Analysis (Haver Analytics)<sup>12</sup>

## Industry Analysis

### **Industry Description**

The automobile industry resides within consumer discretionary sector. This industry relates to companies that focus on automobile design, production, and selling of motor parts and vehicles. Major competitors include Toyota

Motor Corp., Volkswagen Ag., and Ford Motor Co.

In addition to these major manufacturers, a smaller portion of the industry pertains to auto part retailers such as Advance Auto Parts, O'Reilly Autoparts, and AutoZone. These companies sell auto parts such as car batteries, engines, wiper blades, and motor oil to both professional customers as well as retail.

### **Industry Supply Chain**

New car sales have remained stable after decreasing drastically at the beginning of the pandemic. The original decline in sales was caused by the lack of demand due to the Coronavirus; however, while other industries have recovered, new car sales remain low because automakers cannot manufacture the necessary supply of new cars because of supply chain struggles for semiconductor chips<sup>13</sup>.



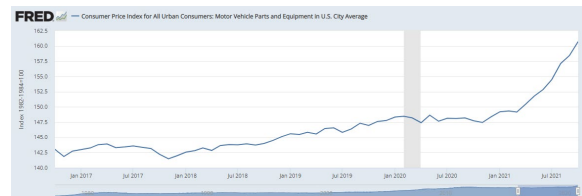
Source: U.S. Bureau of Economic Analysis<sup>14</sup>

While the supply of new cars cannot meet the demand, prices of new cars have increased by 10% and used cars by 26% this year<sup>8</sup>. This has caused consumers to give up the opportunity to purchase a new car and exercise the option to purchase auto parts and repair the current car.

As of right now there are no signs of the supply chain correcting itself soon. We foresee this increase in auto parts demand to last another two to three years before there being a decrease when we believe supply chain struggles be resolved and consumers look to purchase new cars once again.

### **Industry CPI**

The motor vehicle parts and equipment CPI has grown substantially from the height of the pandemic. Since October 2020, the industry's CPI has risen by 8.8% compared to the national average of 6.2%<sup>8</sup>. Although high CPI is usually a negative indicator for discretionary goods, we see this as a sign strength for our industry due to the extremely high demand.



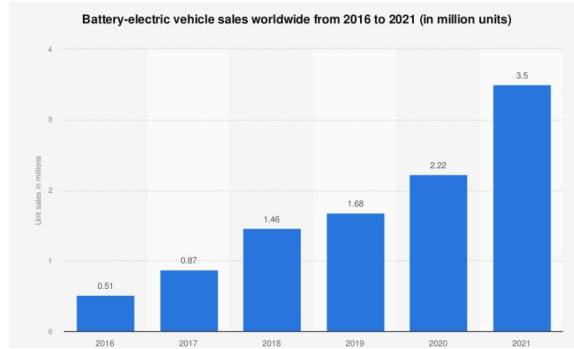
Source: U.S. Bureau of Labor Statistics<sup>15</sup>

The decrease of consumer purchasing power, caused by inflation, combined with the increased price of new and used cars is making it difficult for consumers to pay a premium for those items. Although auto parts and equipment has also increased in price since last year, we don't believe that will negatively affect the industry because industry prices have increased by less than the alternative options.

Many consumers rely on their car to get to work and perform other daily tasks which makes it less likely for them to ignore car struggles. Although auto parts prices are high, we do not believe this will stop consumers from purchasing them due to the widespread need for a car and because the alternative of buying a new car would be more expensive than purchasing parts to fix the current vehicle.

### **Increased Electric Vehicle Popularity**

Over the last few years electric vehicle (EV) demand has skyrocketed. The growing interest in this market has been partially caused by EVs being better for the environment and less costs for the consumer regarding gas prices.



Source: Statista (Frost & Sullivan)<sup>16</sup>

Growing EV popularity may cause a change in the auto parts industry. According to most car battery manufacturers, car batteries should be replaced every 3 to 5 years to insure car performance<sup>17</sup>. In contrast, electric vehicle batteries are estimated to need replacement every 8 to 20 years. In addition to the lengthy battery life, as of right now, EV batteries are being replaced by only the manufacturer, not auto parts stores.

On top of EVs damaging the battery sales of the industry, they also do not require oil changes and other engine maintenance requirements that “normal” cars regularly do. The auto parts industry will have to add new items that pertain specifically to EVs to maintain sales in the future.

Although the EV market is growing quickly, we do not believe it will be the dominant car type for another 8 to 12 years and is not an immediate risk. Regardless, this is a future risk that could harm the industry if they are unable to adapt.

### **Porter’s Five Forces**

Porter’s Five Forces is a model used to recognize five competitive forces that sculpt the auto parts retail industry.

#### **Threat of New Entry**

There is a low threat for new entrants to come into the auto parts industry. The most

significant barrier regarding the industry is the extremely high inventory a company must have at any given time. Generally, Advance Auto Parts has 45% of its net sales in its inventory and competitors such as O’Reilly Automotive and AutoZone have inventory that has a value worth 40% of their net sales<sup>18</sup>. The necessity for high levels of inventory makes it extremely unlikely that a new company will enter this market.

#### **Bargaining Power of Buyers**

Bargaining power of buyers refers to the demand a customer puts on the company for the highest quality of products. There is usually a high product standard detailed by product warranties to ensure the quality of all auto parts; however, given the current state of the new car market, consumers do not currently hold much bargaining power. New car and used car prices have skyrocketed due to the supply chain struggles of the new car markets. Due to these circumstances, consumers are taking the alternative route of buying auto parts so they do not have to pay a premium for the other options. This has drastically increase auto parts demand and leaves very little bargaining power to the buyers.

#### **Bargaining Power of Suppliers**

Supplier bargaining power in the auto parts industry are low, however in recent years they have slowly risen. Most companies in the auto parts industry source their raw materials from several suppliers. The suppliers have the power to set higher prices, decreasing profit margins for companies like AAP.

#### **Threats of Substitutes**

There is a high threat of substitutes in the auto parts industry. Many competitors sell very similar products as each other. Company recognition is a driver that can differentiate one company from another.

## Competitive Rivalry

Advance Auto Parts operates in a highly competitive market with a few leaders that hold most of the market share. Due to the competitive nature of the few companies at the top, there is a risk of a consumer going to a competitor for a product or service. Many of the products sold at Advance Auto Parts are also sold by the competition.

## Company Analysis

### Executive Summary

We believe Advance Auto Parts will continue to be a dominant company within the expanding auto parts industry. AAP is poised to gain market share, due to their brand recognition, while the industry continues to reap the benefits of the semiconductor chip shortage. We believe Advance Auto Parts is a Buy with an upside of 20%.

### Regional Companies

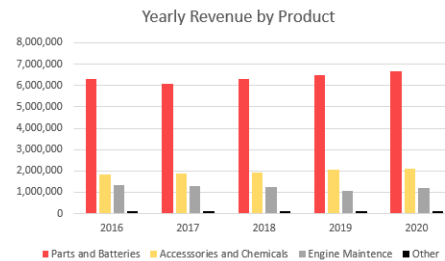
Advance Auto Parts owns Autopart International, Carquest, and WorldPac. These brand names differ based on region and target market.

Advance Auto Parts is their largest retail name. There are 4287 Advance Auto Parts stores that provide both do it yourself (DIY) services and serve professional customers. Autopart International is their smallest retailer with just 161 stores located in the MidAtlantic and New England regions. Since 2018 they have reduced the amount of Autopart International stores by 13%. Carquest is a regional store located in the Midwest and Canada. After closing 41% of Carquest locations over the last five years, 358 remain. WorldPac is the fastest growing Advance Auto Parts store. Although there were just 170 locations as of 2020, that 34% more

than the amount they had in 2016. WorldPac stores are larger than other locations and service professional customers rather than retail and providing DIY services. Although WorldPac doesn't account for many of their stores, over 55% of their revenue consists of professional sales<sup>19</sup>. They are expanding the presence of WorldPac to grow their professional sales in upcoming years.

### Product Sales

Advance Auto Parts divides their revenue into three product types: Parts & Batteries, Accessories & Chemicals, Engine Maintenance. Parts & Batteries consistently accounts for 66% of their total revenue while Accessories & Chemicals and Engine Maintenance generate 20% and 13% respectively<sup>19</sup>. The additional one percent comes from an "other" segment that is not expanded upon.



Source: Advance Auto Parts 10-K<sup>19</sup>

### Potential Restructure

Advance Auto Parts may want to reconsider their revenue streams in the upcoming years due to a high proportion of their revenue coming from batteries. Over the last few years EV popularity has been growing quickly. Although currently they don't take a huge share of the overall market, within the next eight to twelve years they may begin to take close to half of all new car sales. If this is the case, it could hinder the potential growth of AAP. Electric vehicles require less battery replacements than traditional cars. In addition, electric car manufacturers replace their



batteries rather than auto part retailers such as Advance Auto Parts. These risks may cause AAP to restructure how they generate their revenue and potentially require them to start providing new products and services specifically for electric vehicles.

### **Notable Investment Considerations**

#### **Positives**

- AAP is an extremely recognizable brand within the industry which gives them an advantage over smaller companies.
- There is extremely high demand for auto parts due to the inflated prices of new and used cars
- Advance Auto Parts is expanding their services to professional customers; a market that generates much of their revenue.

#### **Negatives**

- There are a few other industry players who offer very similar products and services as AAP.
- The growing popularity of EVs may hinder the future sales of Advance Auto Parts' largest revenue stream.

## **Valuation Analysis**

### **Financial Statement Assumptions**

To forecast a variety of accounts on Advance Auto Parts' financial statements, we found their value relative to net sales over the last five years and believe that these trends will remain consistent. The following are assumptions used in our forecasts for major accounts relative to net sales: Cost of Sales, 53.5%, Selling General and Administrative Expenses, 37%, Inventory, 45%.

#### **Cost of Equity**

Our Beta assumption of 1.42 is derived from being the average beta for Advance Auto Parts using weekly data for 2-year, 3-year, 4 year, and 5-year time horizons. Our assumed Equity Risk Premium comes from the findings of NYU Professor Damodaran. He has calculated the implied trailing 12-month Equity Risk Premium to be 4.88%<sup>20</sup>.

#### **Cost of Debt**

We found the cost of debt by finding the pre-tax cost of debt and multiplying that by one minus the marginal tax rate. Advance Auto Parts' pre-tax cost of debt of 2.49% was found using Bloomberg's projected ten-year Yield %. They found this projected yield by looking at similar issuers who have debt outstanding for that time period.

#### **Weighted Average Cost of Capital**

We found the Weighted Average Cost of Capital (WACC) by finding the proportions of Advance Auto Parts' market value of equity, debt, and lease obligations and multiplying them by their respective costs. In doing so, we found their WACC is 6.71%.

### **Discounted Cash Flow & Economic Profit**

The Discounted Cash Flow (DCF) model was built by forecasting Advance Auto Parts' free cash flow and discounting them by the company's WACC. Free cash flow was found by subtracting the change in invested capital from the Net Operating Profits Less Adjusted Taxes (NOPLAT).

The Economic Profit (EP) model was built by discounting AAP's economic profit by the WACC. Economic Profit was determined by multiplying their beginning Invested Capital by the difference between their ROIC and WACC for the given year.

Both models have given Advance Auto Parts an implied price of \$282.45. This implied price

would indicate that their stock is currently undervalued at \$238.

### **Dividend Discount Model**

Our dividend discount model has a price target of \$133.50. This price is 43.9% less than AAP's current stock price and 52.73% less than our DCF model's target price. Although this price target would indicate selling AAP, we do not believe this model is very accurate. AAP has increased its yearly dividends from \$0.24 to \$4.00 since the beginning of 2020. Due to this drastic increase, it is difficult to predict whether AAP will continue to increase their dividends or if they will decide to increase their retention ratio.

### **Relative Valuation**

Our relative valuation model compares Advance Auto Parts to four competitors in the industry: O'Reilly Automotive Inc. (ORLY), AutoZone Inc. (AZO), Carmax Inc. (KMX), and AutoZone Inc. (AZO). We used ratios such as Price-to-Earnings (P/E) and Price-to-Sales (P/S) to compare Advance Auto Parts with their competitors.

Advance Auto Parts has a P/E ratio of 27.2 which is higher than the industry average of 18.02. ORLY is the only competitor with a higher P/E ratio. Although this shows that the price of AAP is higher than competitors, it could also indicate its higher growth potential.

P/S is another important ratio in the retail industry. AAP's P/S ratio is slightly below the industry average. If we apply our forecasted 2021 sales for Advance Auto Parts to the industry average P/S ratio, AAP stock would have an implied value of \$313.07.

## **Sensitivity Analysis**

We conducted a series of tests on our model's assumptions to observe the relationships they

have with the implied intrinsic value of Advance Auto Parts. The following analyses test the sensitivity of a variety of assumptions that play a significant role in the outcome of our DCF and EP models.

### **Beta vs. Equity Risk Premium**

This sensitivity analysis provides the fluctuations of stock prices based on changes in our assumed Beta and Equity Risk Premium (ERP). These two variables are elements in finding Advance Auto Parts cost of equity. The cost of equity is an extremely important aspect of finding the WACC due to it being almost 74% market value of all cost of capital. Due to the heavy weight of cost of equity, minor adjustments to these assumptions can result in large price fluctuations. If Advance Auto Parts' Beta were to rise by just 0.04 and the Market Risk Premium increased to 5%, it would drastically increase Advance Auto Parts' cost of equity and decrease the DCF model's implied stock price to \$239.24.

	Beta							
	282.45	1.30	1.34	1.38	1.42	1.46	1.50	1.54
5.24%	299.57	270.35	246.25	226.04	208.85	194.04	181.15	
5.12%	325.72	292.23	264.91	242.21	223.03	206.63	192.42	
5.00%	356.79	317.90	286.58	260.81	239.24	220.91	205.15	
4.88%	394.35	348.45	312.04	282.45	257.93	237.27	219.63	
4.76%	440.63	385.41	342.40	307.95	279.73	256.20	236.26	
4.64%	499.12	431.04	379.21	338.42	305.49	278.34	255.56	
4.52%	575.36	488.81	424.79	375.51	336.39	304.59	278.23	

### **Continuing Value (CV) Growth of Revenue Per Store vs. Inventory % of sales**

This sensitivity analysis explores the relationship our assumed CV growth of revenue per store and inventory as a percent of net sales have with the implied stock price of our DCF model. Both variables may correlate with the growth rate of the EV market. If EV popularity grows faster than expected CV growth of revenue per store may decrease from our assumption; however, inventory as a percent of sales may increase. If EV popularity grows quicker than anticipated our implied stock price would likely decrease closer to \$250. If EV popularity does not grow as quickly as we



expect then the implied stock price could increase near \$325.

		CV Growth Revenue Per Store							
		282.45	3.70%	3.80%	3.90%	4.00%	4.10%	4.20%	4.30%
Inventory % of Sales	48.00%	235.39	246.17	258.56	272.96	289.90	310.13	334.69	
	47.00%	238.53	249.32	261.72	276.13	293.08	313.31	337.90	
	46.00%	241.67	252.47	264.87	279.29	296.25	316.50	341.10	
	45.00%	244.82	255.61	268.03	282.45	299.42	319.69	344.31	
	44.00%	247.96	258.76	271.18	285.62	302.60	322.87	347.52	
	43.00%	251.10	261.91	274.34	288.78	305.77	326.06	350.72	
	42.00%	254.25	265.06	277.49	291.94	308.94	329.25	353.93	

### **Risk Free Rate vs. Pre-Tax Cost of Debt**

We tested the sensitivity that the risk-free rate and pre-tax cost of debt have on the implied stock price of the DCF model because of the connected nature of these two assumptions. If the risk-free rate decreases Advance Auto Parts would be more likely to lean more heavily on debt than in times of high interest rates.

Although the cost of debt does not hold most of the weight for the company's WACC, this would still lower their cost of capital. If the risk-free rate decreased to 1.45% and Advance Auto Parts' pre-tax cost of debt decreased by 0.1% the implied stock price would decrease to \$294.25.

		Risk Free Rate							
		282.45	1.33%	1.39%	1.45%	1.51%	1.57%	1.63%	1.69%
Pre-Tax Cost of Debt	2.79%	298.80	290.01	281.71	273.87	266.45	259.41	252.73	
	2.69%	302.24	293.20	284.67	276.63	269.02	261.81	254.97	
	2.59%	305.81	296.51	287.75	279.49	271.68	264.29	257.29	
	2.49%	309.52	299.95	290.94	282.45	274.44	266.86	259.69	
	2.39%	313.38	303.52	294.25	285.53	277.30	269.53	262.17	
	2.29%	317.40	307.24	297.70	288.72	280.27	272.29	264.74	
	2.19%	321.59	311.11	301.28	292.04	283.35	275.15	267.41	

### **WACC vs. Capital Expenditures per Store**

This sensitivity analysis is used to test how the relationship between the WACC and capital expenditures per store affect the implied stock price. Net sales for Advance Auto Parts reached an all-time high and has led them to increase the number of WorldPac stores they are building. WorldPac primarily serves professional customers and are larger than their other stores. Due to the transition into building more WorldPac's relative to their other stores, their capital expenditures per store have increased drastically. Since February 16<sup>th</sup>, when the CEO of Advance Auto Parts announced the mass

number of stores they plan to build in 2021, their stock price has risen by over 50% which has led to the massive increase in WACC. It seems as if Advance Auto Parts continues to increase Capital Expenditures on new stores, their WACC may increase as well. If they pursue increasing the number of WorldPac locations, their capital expenditures may rise to \$135,000 per store. If this were the case in addition to the WACC increasing by 0.05%, the implied stock price of AAP would decrease to \$252.85.

		WACC							
		282.45	6.56%	6.61%	6.66%	6.71%	6.76%	6.81%	6.86%
CapEx Per Store	155.00	243.30	236.14	229.37	222.88	216.85	211.06	205.55	
	145.00	264.48	256.21	248.41	240.98	234.10	227.51	221.27	
	135.00	287.94	278.32	269.30	260.74	252.85	245.33	238.22	
	125.00	314.14	302.88	292.37	282.45	273.36	264.73	256.60	
	115.00	343.65	330.36	318.05	306.48	295.94	285.98	276.65	
	105.00	377.25	361.43	346.87	333.28	320.98	309.41	298.65	
	95.00	415.97	396.92	379.54	363.45	348.97	335.46	322.95	

### **CV Growth of NOPLAT vs. Cost of Sales (as % of Revenue)**

Our final sensitivity analysis explores how changes in the CV growth of NOPLAT and Cost of Sales relate to the implied stock price of Advance Auto Parts. These two assumptions are both related to the growing popularity of EVs. Increased EV popularity would likely cause a decrease in both the assumed CV growth of NOPLAT and cost of sales relative to net sales. If EV popularity grows at a rate faster than expected our implied stock price would be skewed closer to the \$270 range; however, if EV popularity grows at a slower rate than expected the implied stock price would reflect a higher price target near \$300.

		CV Growth of NOPLAT							
		282.45	4.88%	4.98%	5.08%	5.18%	5.28%	5.38%	5.48%
Cost of Sales	53.80%	240.54	249.23	258.98	269.95	282.57	297.02	313.82	
	53.70%	244.31	253.11	263.00	274.12	286.90	301.55	318.59	
	53.60%	248.08	257.00	267.02	278.28	291.24	306.09	323.35	
	53.50%	251.85	260.89	271.04	282.45	295.58	310.62	328.11	
	53.40%	255.62	264.78	275.06	286.62	299.92	315.16	332.87	
	53.30%	259.39	268.67	279.07	290.79	304.26	319.69	337.63	
	53.20%	263.16	272.55	283.09	294.96	308.60	324.22	342.39	

## Important Disclaimer

This report was created by students enrolled in the Applied Equity Valuation class at the University of Iowa. The report was originally created to offer an internal investment recommendation for the University of Iowa Krause Fund and its advisory board. The report also provides potential employers and other interested parties an example of the students' skills, knowledge and abilities. Members of the Krause Fund are not registered investment advisors, brokers or officially licensed financial professionals. The investment advice contained in this report does not represent an offer or solicitation to buy or sell any of the securities mentioned. Unless otherwise noted, facts and figures included in this report are from publicly available sources. This report is not a complete compilation of data, and its accuracy is not guaranteed. From time to time, the University of Iowa, its faculty, staff, students, or the Krause Fund may hold a financial interest in the companies mentioned in this report.

## Sources

- <sup>1</sup> *The Employment Situation - U.S. Bureau of Labor Statistics.*  
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**Advance Auto Parts Inc**  
**Revenue Decomposition(products)**

%					
<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Parts and Batteries	66%	65%	66%	67%	66%
Accessories and Chemicals	19%	20%	20%	21%	21%
Engine Maintenance	14%	14%	13%	11%	12%
Other	1%	1%	1%	1%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Relative Growth Rate (%)					
Parts and Batteries	0.00%	-1.00%	1.00%	1.00%	-1.00%
Accessories and Chemicals	0.00%	1.00%	0.00%	1.00%	0.00%
Engine Maintenance	<b>0.00%</b>	<b>0.00%</b>	<b>-1.00%</b>	<b>-2.00%</b>	<b>1.00%</b>
Other	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>
Total Revenues(in thousands)					
	\$ 9,567,679.00	\$ 9,373,784.00	\$ 9,580,554.00	\$ 9,709,003.00	\$ 10,106,321.00
Parts and Batteries					
	6,314,668.14	6,092,959.60	6,323,165.64	6,505,032.01	6,670,171.86
Accessories and Chemicals					
	1,817,859.01	1,874,756.80	1,916,110.80	2,038,890.63	2,122,327.41
Engine Maintenance					
	1,339,475.06	1,312,329.76	1,245,472.02	1,067,990.33	1,212,758.52
Other					
	95,676.79	93,737.84	95,805.54	97,090.03	101,063.21
Total					
(% growth of Revenues)					
Parts and Batteries		-3.51%	3.78%	2.88%	2.54%
Accessories and Chemicals		3.13%	2.21%	6.41%	4.09%
Engine Maintenance		-2.03%	-5.09%	-14.25%	13.56%
Other		-2.03%	2.21%	1.34%	4.09%

**Store By Region**

<b>Advance Auto Parts</b>										
<b>Revenue</b>	<b>9,567,679.00</b>	<b>9,373,784.00</b>	<b>9,580,554.00</b>	<b>9,709,003.00</b>	<b>10,106,321.00</b>	<b>\$ 11,195,208.03</b>	<b>\$ 11,799,576.59</b>	<b>\$ 12,035,568.12</b>	<b>\$ 11,672,293.58</b>	<b>\$ 12,204,139.35</b>
<b>Advance Auto Parts</b>										
# of stores	4273	4432	4380	4313	4287	4373	4417	4417	4373	4395
Revenue per Advance Auto Parts location	\$ 1,843.84	\$ 1,808.56	\$ 1,875.23	\$ 1,927.54	\$ 2,031.01	\$ 2,213.80	\$ 2,302.36	\$ 2,348.40	\$ 2,313.18	\$ 2,405.70
Change in Stores		3.72%	-1.17%	-1.53%	-0.60%	2.0%	1.0%	0.0%	-1.0%	0.5%
<b>Carquest</b>										
# of stores	608	437	401	384	358	344.00	344.00	325.00	293.00	287.00
Revenue per carquest location	\$1,843.84	\$1,808.56	\$1,875.23	\$1,927.54	\$2,031.01	\$2,213.80	\$2,302.36	\$2,348.40	\$2,313.18	\$2,405.70
Change in stores		-28.13%	-8.24%	-4.24%	-6.77%	-4.0%	0.0%	-5.5%	-10.0%	-2.0%
<b>WorldPac</b>										
# of stores	127	129	143	160	170	187	209	228	230	242
Revenue per worldpac location	\$1,843.84	\$1,808.56	\$1,875.23	\$1,927.54	\$2,031.01	\$2,213.80	\$2,302.36	\$2,348.40	\$2,313.18	\$2,405.70
Change in stores		1.57%	10.85%	11.89%	6.25%	10.0%	12.0%	9.0%	1.0%	5.0%
<b>Autopart international("AI")</b>										
# of stores	181	185	185	180	161	153	155	155	150	149
Revenue per AI location	\$1,843.84	\$1,808.56	\$1,875.23	\$1,927.54	\$2,031.01	\$2,213.80	\$2,302.36	\$2,348.40	\$2,313.18	\$2,405.70
Change in Stores		2.21%	0.00%	-2.70%	-10.56%	-5.0%	1.0%	0.0%	-3.0%	-1.0%
Change in Rev per store		-1.91%	3.69%	2.79%	5.37%	9.00%	4.00%	2.00%	-1.50%	4.00%
Total stores	5189	5183	5109	5037	4976	5057	5125	5125	5046	5073

**Advance Auto Parts Inc**  
*Income Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Net sales</b>	9,567,679	9,373,784	9,580,554	9,709,003	10,106,321
<b>Cost of sales</b>	5,053,377	5,039,475	5,122,957	5,215,886	5,374,626
<b>Depreciation and Amortization</b>	258,387	249,260	238,184	238,371	250,081
Gross profit	4,255,915	4,085,049	4,219,413	4,254,746	4,481,614
<b>Selling, general and administrative expenses</b>	3,468,317	3,514,837	3,615,138	3,577,566	3,731,707
Operating income	787,598	570,212	604,275	677,180	749,907
<b>Other, net:</b>					
Interest expense	(59,910)	(58,801)	(56,588)	(39,898)	(46,886)
Loss on early redemptions of senior unsecured notes	-	-	-	(10,756)	(48,022)
Other income, net	11,147	8,848	7,577	11,220	(3,984)
Total other, net	15	(49,953)	(49,011)	(39,434)	(98,892)
<b>Income before provision for income taxes</b>	738,835	520,259	555,264	637,746	651,015
<b>Provision for income taxes</b>	279,213	44,754	131,417	150,850	157,994
<b>Net income</b>	459,622	475,505	423,847	486,896	493,021
<b>Basic earnings per common share (in usd per share)</b>	6.22	6.44	5.75	6.87	7.17
Weighted average common shares outstanding	73,562	73,846	73,728	70,869	68,748
Cash Dividends Per Share	0.24	0.24	0.24	0.24	1.00



Advance Auto Parts Inc  
Balance Sheet

<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>
<b>Current assets:</b>										
Cash and cash equivalents	135,178	546,937	896,527	418,665	834,992	1,810,570	1,976,348	2,320,318	2,663,932	2,867,963
Receivables, net	641,252	606,357	624,972	689,469	749,999	811,653	855,469	872,579	846,241	884,800
Inventories	4,325,868	4,168,492	4,362,547	4,432,168	4,538,199	5,037,844	5,309,809	5,416,006	5,252,532	5,491,863
Other current assets	70,466	105,106	198,408	155,241	146,811	179,123	188,793	192,569	186,757	195,266
Total current assets	5,172,764	5,426,892	6,082,454	5,695,543	6,270,001	7,839,189	8,330,420	8,801,471	8,949,462	9,439,892
<b>Property and equipment, net</b>	1,446,340	1,394,138	1,368,985	1,433,213	1,462,602	1,563,229	1,644,667	1,705,442	1,743,427	1,774,292
<b>Operating lease right-of-use assets</b>	-	-	-	2,365,325	2,379,987	2,459,725	2,492,800	2,492,800	2,454,374	2,467,507
<b>Goodwill</b>	990,877	994,293	990,237	992,240	993,590	993,590	993,590	993,590	993,590	993,590
<b>Intangible assets, net</b>	640,903	597,674	550,593	709,756	681,127	650,900	620,769	593,526	566,105	538,735
<b>Other assets</b>	64,149	69,304	48,379	52,448	52,329	55,976	58,998	60,178	58,361	61,021
<b>Assets, Total</b>	8,315,033	8,482,301	9,040,648	11,248,525	11,839,636	13,562,609	14,141,245	14,647,007	14,765,320	15,275,037
<b>Current liabilities:</b>										
Accounts payable	3,086,177	2,894,582	3,172,790	3,421,987	3,640,639	3,806,371	4,011,856	4,092,093	3,968,580	4,149,407
Accrued expenses	554,397	533,548	623,141	535,863	606,804	615,736	648,977	661,956	641,976	671,228
Other current liabilities	35,166	51,967	90,019	519,852	496,472	447,808	471,983	481,423	466,892	488,166
Total current liabilities	3,676,046	3,480,097	3,885,950	4,477,702	4,743,915	4,869,915	5,132,816	5,235,472	5,077,448	5,308,801
<b>Long-term debt</b>	1,042,949	1,044,327	1,045,720	747,320	1,032,984	1,127,940	1,177,901	1,194,818	1,157,162	1,200,985
<b>Noncurrent operating lease liabilities</b>	-	-	-	2,017,159	2,014,499	2,090,766	2,118,880	2,118,880	2,086,218	2,097,381
<b>Deferred income taxes</b>	454,282	303,620	318,353	334,013	342,445	355,903	369,890	384,427	399,535	415,236
<b>Other long-term liabilities</b>	225,564	239,061	239,812	123,250	146,281	167,928	176,994	180,534	175,084	183,062
<b>Liabilities, total</b>	5,398,841	5,067,105	5,489,835	7,699,444	8,280,124	8,612,453	8,976,481	9,114,130	8,895,448	9,205,466
<b>Stockholders' equity:</b>										
Preferred stock	-	-	-	-	-	-	-	-	-	-
Common Stock	631,060	664,654	694,805	735,191	783,717	783,717	783,717	783,717	783,717	783,717
Treasury stock, at cost	(138,102)	(144,600)	(425,954)	(924,389)	(1,394,080)	(432,200)	(576,554)	(576,554)	(576,554)	(576,554)
Accumulated other loss	(39,701)	(24,954)	(44,193)	(34,569)	(26,759)	(26,759)	(26,759)	(26,759)	(26,759)	(26,759)
Retained earnings	2,462,935	2,920,096	3,326,155	3,772,848	4,196,634	4,625,398	4,984,360	5,352,473	5,689,469	5,889,168
Total stockholders' equity	2,916,192	3,415,196	3,550,813	3,549,081	3,559,512	4,950,156	5,164,764	5,532,877	5,869,873	6,069,572
<b>Liabilities and Stockholders' Equity, Total</b>	8,315,033	8,482,301	9,040,648	11,248,525	11,839,636	13,562,609	14,141,245	14,647,007	14,765,320	15,275,037

**Advance Auto Parts Inc**  
*Historical Cash Flow Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Cash flows from operating activities:</b>					
Net income	459,622.00	475,505.00	423,847.00	486,896.00	493,021.00
Adjustments to reconcile net income to net cash provided by operating activities:					
Depreciation and amortization	258,387.00	249,260.00	238,184.00	238,371.00	250,081.00
Share-based compensation	20,452.00	35,267.00	27,760.00	37,438.00	45,271.00
Loss and impairment of long-lived assets	5,999.00	17,106.00	15,956.00	6,671.00	4,727.00
Loss on early redemption of senior unsecured notes	-	-	-	10,756.00	48,022.00
Other, net	(2,039.00)	3,123.00	2,195.00	1,681.00	1,467.00
Provision for deferred income taxes	20,213.00	(151,263.00)	15,956.00	23,148.00	8,136.00
Net change in:					
Receivables, net	(41,642.00)	36,047.00	(21,471.00)	(62,837.00)	(59,014.00)
Inventories	(144,603.00)	167,548.00	(206,125.00)	(63,130.00)	(101,449.00)
Accounts payable	(119,325.00)	(197,168.00)	285,493.00	245,785.00	216,488.00
Accrued expenses	49,341.00	(13,295.00)	93,940.00	(72,288.00)	78,507.00
Other assets and liabilities, net	16,898.00	(21,325.00)	(64,707.00)	14,418.00	(15,569.00)
Net cash provided by operating activities	<u>523,303.00</u>	<u>600,805.00</u>	<u>811,028.00</u>	<u>866,909.00</u>	<u>969,688.00</u>
<b>Cash flows from investing activities:</b>					
Purchases of property and equipment	(259,559.00)	(189,758.00)	(193,715.00)	(270,129.00)	(267,576.00)
Purchase of an indefinite-lived intangible asset	-	-	-	(201,519.00)	(230.00)
Proceeds from sales of property and equipment	2,212.00	11,099.00	1,888.00	8,709.00	909.00
Other, net	(4,697.00)	20.00	-	-	-
Net cash used in investing activities	<u>(262,044.00)</u>	<u>(178,639.00)</u>	<u>(191,827.00)</u>	<u>(462,939.00)</u>	<u>(266,897.00)</u>
<b>Cash flows from financing activities:</b>					
(Decrease) increase in bank overdrafts	(5,573.00)	14,004.00	32,014.00	(59,339.00)	-
Redemption of senior unsecured note	799,600.00	534,400.00	-	(310,047.00)	(602,568.00)
Borrowings under credit facilities	(959,600.00)	(534,400.00)	-	-	500,000.00
Payments on credit facilities	(17,738.00)	(17,854.00)	-	-	(500,000.00)
Proceeds from issuance of senior unsecured notes, net	4,532.00	4,076.00	-	-	847,092.00
Dividends paid	(19,558.00)	(6,531.00)	(17,819.00)	(17,185.00)	(56,347.00)
Proceeds from the issuance of common stock	(18,393.00)	(6,498.00)	3,200.00	3,334.00	3,270.00
Repurchases of common stock	(390.00)	(2,069.00)	(281,354.00)	(498,435.00)	(469,691.00)
Other, net	(217,120.00)	(14,872.00)	44.00	(481.00)	(7,753.00)
Net cash used in financing activities	<u>257.00</u>	<u>4,465.00</u>	<u>(263,915.00)</u>	<u>(882,153.00)</u>	<u>(285,997.00)</u>
Effect of exchange rate changes on cash	44,396.00	411,759.00	(5,696.00)	321.00	(467.00)
<b>Net increase (decrease) in cash and cash equivalents</b>	<u>90,782.00</u>	<u>135,178.00</u>	<u>349,590.00</u>	<u>(477,862.00)</u>	<u>416,327.00</u>
<b>Cash and cash equivalents, end of period</b>	<u>135,178.00</u>	<u>546,937.00</u>	<u>896,527.00</u>	<u>418,665.00</u>	<u>834,992.00</u>

**Advance Auto Parts Inc**  
*Forecasted Cash Flow Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>
<b>Cash flows from operating activities:</b>					
Net income	600,634	633,953	643,105	611,988	646,561
Depreciation and Amortization	265,749	279,593	289,925	296,383	301,630
Accounts Receivable	(61,654)	(43,817)	(17,109)	26,337	(38,559)
Inventory	(499,645)	(271,966)	(106,196)	163,474	(239,331)
Accounts Payable	165,732	205,485	80,237	(123,513)	180,828
Accrued Expenses	8,932	33,240	12,980	(19,980)	29,252
Change in Deffered Taxes	13,458	13,987	14,537	15,108	15,702
Operating Lease Right of Use	(79,738)	(33,075)	-	38,426	(13,133)
Noncurrent Operating Lease Liabilities	76,267	28,114	-	(32,662)	11,163
Other Current Assets	(32,312)	(9,670)	(3,776)	5,812	(8,510)
Other Current Liabilities	(48,664)	24,175	9,440	(14,531)	21,274
<b>Operating Cash Flows</b>	<b>408,761</b>	<b>860,020</b>	<b>923,142</b>	<b>966,841</b>	<b>906,877</b>
<b>Cash flows from investing activities:</b>					
Purchases of Property and Equipment	(366,376)	(361,032)	(350,700)	(334,367)	(332,495)
Capitalization of intangible assets	30,227	30,131	27,243	27,421	27,370
Business acquisitions	-	-	-	-	-
Increase Other Assets	(3,647)	(3,022)	(1,180)	1,816	(2,659)
Other Longterm Liabilities	21,647	9,066	3,540	(5,449)	7,978
Change in longterm debt	94,956	49,961	16,917	(37,656)	43,823
<b>Investing Cash Flows</b>	<b>(223,193)</b>	<b>(274,896)</b>	<b>(304,180)</b>	<b>(348,235)</b>	<b>(255,984)</b>
<b>Cash flows from financing activities:</b>					
Dividends	(171,870)	(274,992)	(274,992)	(274,992)	(446,862)
Change in Common Stock	-	-	-	-	-
Change in Treasury Stock	961,880	(144,354)	-	-	-
<b>Financing Cash Flows</b>	<b>790,010</b>	<b>(419,346)</b>	<b>(274,992)</b>	<b>(274,992)</b>	<b>(446,862)</b>
Change in Cash	975,578	165,779	343,969	343,615	204,031
Beginning Cash	834,992	1,810,570	1,976,348	2,320,318	2,663,932
Ending Cash	1,810,570	1,976,348	2,320,318	2,663,932	2,867,963



**Advance Auto Parts Inc**  
Common Size Balance Sheet

<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>
<b>Current assets:</b>										
Cash and cash equivalents	1.41%	5.83%	9.36%	4.31%	8.26%	16.17%	16.75%	19.28%	22.82%	23.50%
Receivables, net	6.70%	6.47%	6.52%	7.10%	7.42%	7.25%	7.25%	7.25%	7.25%	7.25%
Inventories	45.21%	44.47%	45.54%	45.65%	44.90%	45.00%	45.00%	45.00%	45.00%	45.00%
Other current assets	0.74%	1.12%	2.07%	1.60%	1.45%	1.60%	1.60%	1.60%	1.60%	1.60%
Total current assets	54.06%	57.89%	63.49%	58.66%	62.04%	70.02%	70.60%	73.13%	76.67%	77.35%
<b>Property and equipment</b>	15.12%	14.87%	14.29%	14.76%	14.47%	13.96%	13.94%	14.17%	14.94%	14.54%
<b>Operating lease right-of-use assets</b>	0.00%	0.00%	0.00%	24.36%	23.55%	21.97%	21.13%	20.71%	21.03%	20.22%
<b>Goodwill</b>	10.36%	10.61%	10.34%	10.22%	9.83%	8.88%	8.42%	8.26%	8.51%	8.14%
<b>Intangible assets, net</b>	6.70%	6.38%	5.75%	7.31%	6.74%	5.81%	5.26%	4.93%	4.85%	4.41%
<b>Other assets</b>	0.67%	0.74%	0.50%	0.54%	0.52%	0.50%	0.50%	0.50%	0.50%	0.50%
<b>Assets, Total</b>	<b>86.91%</b>	<b>90.49%</b>	<b>94.36%</b>	<b>115.86%</b>	<b>117.15%</b>	<b>121.15%</b>	<b>119.85%</b>	<b>121.70%</b>	<b>126.50%</b>	<b>125.16%</b>
<b>Current liabilities:</b>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accounts payable	32.26%	30.88%	33.12%	35.25%	36.02%	34.00%	34.00%	34.00%	34.00%	34.00%
Accrued expenses	5.79%	5.69%	6.50%	5.52%	6.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Other current liabilities	0.37%	0.55%	0.94%	5.35%	4.91%	4.00%	4.00%	4.00%	4.00%	4.00%
Total current liabilities	38.42%	37.13%	40.56%	46.12%	46.94%	43.50%	43.50%	43.50%	43.50%	43.50%
<b>Long-term debt</b>	10.90%	11.14%	10.92%	7.70%	10.22%	10.08%	9.98%	9.93%	9.91%	9.84%
<b>Noncurrent operating lease liabilities</b>	0.00%	0.00%	0.00%	20.78%	19.93%	18.68%	17.96%	17.61%	17.87%	17.19%
<b>Deferred income taxes</b>	4.75%	3.24%	3.32%	3.44%	3.39%	3.18%	3.13%	3.19%	3.42%	3.40%
<b>Other long-term liabilities</b>	2.36%	2.55%	2.50%	1.27%	1.45%	1.50%	1.50%	1.50%	1.50%	1.50%
<b>Stockholders' equity:</b>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Preferred stock	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Additional paid-in capital	6.60%	7.09%	7.25%	7.57%	7.75%	7.00%	6.64%	6.51%	6.71%	6.42%
Treasury stock, at cost	-1.44%	-1.54%	-4.45%	-9.52%	-13.79%	-3.86%	-4.89%	-4.79%	-4.94%	-4.72%
Accumulated other loss	-0.41%	-0.27%	-0.46%	-0.36%	-0.26%	-0.24%	-0.23%	-0.22%	-0.23%	-0.22%
Retained earnings	25.74%	31.15%	34.72%	38.86%	41.52%	41.32%	42.24%	44.47%	48.74%	48.26%
Total stockholders' equity	30.48%	36.43%	37.06%	36.55%	35.22%	44.22%	43.77%	45.97%	50.29%	49.73%
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Liabilities and Stockholders' Equity, Total</b>	<b>86.91%</b>	<b>90.49%</b>	<b>94.36%</b>	<b>115.86%</b>	<b>117.15%</b>	<b>121.15%</b>	<b>119.85%</b>	<b>121.70%</b>	<b>126.50%</b>	<b>125.16%</b>

Advance Auto Parts Inc  
Value Driver Estimation

Fiscal Years Ending Dec. 31	2016	2017	2018	2019	2020	2021E	2022E	2023E	2024E	2025E
<b>NOPLAT:</b>										
Net sales	9,567,679	9,373,784	9,580,554	9,709,003	10,106,321	11,195,208	11,799,577	12,035,568	11,672,294	12,204,139
Cost of sales	5,053,377	5,039,475	5,122,957	5,215,886	5,374,626	5,989,436	6,312,773	6,439,029	6,244,677	6,529,215
Selling, general and administrative expenses	3,468,317	3,514,837	3,615,138	3,577,566	3,731,707	4,142,227	4,365,843	4,453,160	4,318,749	4,515,532
<b>Depreciation and Amortization</b>						265,749	279,593	289,925	296,383	301,630
Other income, net	11,147	8,848	7,577	11,220	(3,984)	334	724	791	928	1,066
Implied Interest on Operating Leases		67,908	66,441	58,897	59,262	61,247	62,071	62,071	61,114	61,441
<b>EBITA</b>	<b>1,034,838</b>	<b>878,532</b>	<b>901,323</b>	<b>963,228</b>	<b>1,063,234</b>	<b>858,709</b>	<b>902,713</b>	<b>914,734</b>	<b>872,671</b>	<b>918,139</b>
<b>Adjusted Taxes:</b>										
Provision for Income Taxes	279,213	44,754	131,417	150,850	157,994	169,410	178,807	181,389	172,612	182,363
Interest Expense	13,180	12,936	12,449	8,778	10,315	6,179	6,453	6,545	6,339	6,579
Tax shield on Lease Interest	-	14,940	14,617	12,957	13,038	13,474	13,656	13,656	13,445	13,517
Other income	(2,452)	(1,947)	(1,667)	(2,468)	876	(73)	(159)	(174)	(204)	(234)
Loss on early redemptions of senior unsecured notes	-	-	-	(2,366)	(10,565)	-	-	-	-	-
<b>Total Adjusted Taxes</b>	<b>289,941</b>	<b>70,683</b>	<b>156,817</b>	<b>167,750</b>	<b>171,658</b>	<b>188,989</b>	<b>198,756</b>	<b>201,415</b>	<b>192,192</b>	<b>202,225</b>
Change in Deferred tax liabilities	20,357	(150,662)	14,733	15,660	8,432	13,458	13,987	14,537	15,108	15,702
<b>NOPLAT:</b>	<b>765,254</b>	<b>657,187</b>	<b>759,240</b>	<b>811,138</b>	<b>900,008</b>	<b>683,178</b>	<b>717,944</b>	<b>727,855</b>	<b>695,587</b>	<b>731,616</b>
<b>Invested Capital (IC):</b>										
<b>Operating Current Assets:</b>										
Normal cash (lesser of actual / 4.31% sales)	135,178	404,010	412,922	418,458	435,582	482,513	508,562	518,733	503,076	525,998
Accounts Rec, Net	641,252	606,357	624,972	689,469	749,999	811,653	855,469	872,579	846,241	884,800
Inventories	4,325,868	4,168,492	4,362,547	4,432,168	4,538,199	5,037,844	5,309,809	5,416,006	5,252,532	5,491,863
<b>Total Operating Current Assets:</b>	<b>5,102,298</b>	<b>5,178,859</b>	<b>5,400,441</b>	<b>5,540,095</b>	<b>5,723,780</b>	<b>6,332,010</b>	<b>6,673,841</b>	<b>6,807,317</b>	<b>6,601,849</b>	<b>6,902,661</b>
<b>Operating Current Liabilities:</b>										
Accounts payable	3,086,177	2,894,582	3,172,790	3,421,987	3,640,639	3,806,371	4,011,856	4,092,093	3,968,580	4,149,407
Accrued expenses	554,397	533,548	623,141	535,863	606,804	615,736	648,977	661,956	641,976	671,228
Other current liabilities	35,166	51,967	90,019	519,852	496,472	447,808	471,983	481,423	466,892	488,166
<b>Total Current Liabilities</b>	<b>3,675,740</b>	<b>3,480,097</b>	<b>3,885,950</b>	<b>4,477,702</b>	<b>4,743,915</b>	<b>4,869,915</b>	<b>5,132,816</b>	<b>5,235,472</b>	<b>5,077,448</b>	<b>5,308,801</b>
<b>OPERATING WORKING CAPITAL</b>	<b>1,426,558</b>	<b>1,698,762</b>	<b>1,514,491</b>	<b>1,062,393</b>	<b>979,865</b>	<b>1,462,094</b>	<b>1,541,025</b>	<b>1,571,845</b>	<b>1,524,402</b>	<b>1,593,861</b>
ADD: Intangible assets, net	640,903	597,674	550,593	709,756	681,127	650,900	620,769	593,526	566,105	538,735
ADD: PV of MIN Payments(ROU)	2,727,228	2,668,330	2,613,682	2,365,325	2,379,987	2,459,725	2,492,800	2,492,800	2,454,374	2,467,507
ADD: NET PPE	1,446,340	1,394,138	1,368,985	1,433,213	1,462,602	1,563,229	1,644,667	1,705,442	1,743,427	1,774,292
ADD: Other Assets	64,149	69,304	48,379	52,448	52,329	55,976	58,998	60,178	58,361	61,021
Less: Other long-term liabilities	225,564	239,061	239,812	123,250	146,281	167,928	176,994	180,534	175,084	183,062
<b>INVESTED CAPITAL (IC):</b>	<b>6,079,614</b>	<b>6,189,147</b>	<b>5,856,318</b>	<b>5,499,885</b>	<b>5,409,629</b>	<b>6,023,996</b>	<b>6,181,265</b>	<b>6,243,257</b>	<b>6,171,585</b>	<b>6,252,354</b>
<b>Free Cash Flow (FCF):</b>										
NOPLAT	\$ 765,254	\$ 657,187	\$ 759,240	\$ 811,138	\$ 900,008	\$ 683,177.60	\$ 717,943.67	\$ 727,855.29	\$ 695,587.26	\$ 731,615.62
Change in IC	\$ 109,533.31	\$ (332,829.02)	\$ (356,433.10)	\$ (90,255.59)	\$ 614,366.56	\$ 157,269.19	\$ 61,992.31	\$ (71,672.64)	\$ 80,768.98	\$ 80,768.98
<b>FCF</b>	<b>\$ 547,653</b>	<b>\$ 1,092,069</b>	<b>\$ 1,167,571</b>	<b>\$ 990,263</b>	<b>\$ 68,811</b>	<b>\$ 560,674</b>	<b>\$ 665,863</b>	<b>\$ 767,260</b>	<b>\$ 650,847</b>	<b>\$ 650,847</b>
<b>Return on Invested Capital (ROIC):</b>										
NOPLAT	\$ 765,254	\$ 657,187	\$ 759,240	\$ 811,138	\$ 900,008	\$ 683,177.60	\$ 717,943.67	\$ 727,855.29	\$ 695,587.26	\$ 731,615.62
Beginning IC	\$ 6,079,613.85	\$ 6,189,147.16	\$ 5,856,318.13	\$ 5,499,885.03	\$ 5,409,629.44	\$ 6,023,995.99	\$ 6,181,265.18	\$ 6,243,257.49	\$ 6,171,584.85	\$ 6,171,584.85
<b>ROIC</b>	<b>10.81%</b>	<b>12.27%</b>	<b>13.85%</b>	<b>16.36%</b>	<b>12.63%</b>	<b>11.92%</b>	<b>11.78%</b>	<b>11.14%</b>	<b>11.14%</b>	<b>11.8546%</b>
<b>Economic Profit (EP):</b>										
Beginning IC	\$ 6,079,613.85	\$ 6,189,147.16	\$ 5,856,318.13	\$ 5,499,885.03	\$ 5,409,629.44	\$ 6,023,995.99	\$ 6,181,265.18	\$ 6,243,257.49	\$ 6,171,584.85	\$ 6,171,584.85
x (ROIC - WACC)	4.10%	5.56%	7.14%	9.65%	5.92%	5.21%	5.06%	4.43%	5.14%	5.14%
<b>EP</b>	<b>\$ 249,211</b>	<b>\$ 343,914</b>	<b>\$ 418,147</b>	<b>\$ 530,935</b>	<b>\$ 320,162</b>	<b>\$ 313,701</b>	<b>\$ 313,059</b>	<b>\$ 276,631</b>	<b>\$ 317,469</b>	<b>\$ 317,469</b>



**Advance Auto Parts Inc***Weighted Average Cost of Capital (WACC) Estimation***Cost of Equity:**

Risk-Free Rate	1.51%
Beta	1.42
Equity Risk Premium	4.88%
<b>Cost of Equity</b>	<b>8.44%</b>

**ASSUMPTIONS:**

10-year Treasury bond  
Average weekly beta for 2, 3, 4, and 5 years  
Type ERP assumption here (example: "1928-2020 geome

**Cost of Debt:**

Risk-Free Rate	1.51%
Implied Default Premium	0.98%
Pre-Tax Cost of Debt	2.49%
Marginal Tax Rate	22%
<b>After-Tax Cost of Debt</b>	<b>1.94%</b>

10-year Treasury bond

Bloomberg estimated YTM for 10 year bonds

**Cost of Leases:**

Cost of Lease	2.34%
Marginal Tax Rate	22.00%
<b>After-Tax Cost of Leases</b>	<b>1.83%</b>

**Market Value of Common Equity:**

Total Shares Outstanding	68,748
Current Stock Price	\$238.00
<b>MV of Equity</b>	<b>16,362,024.00</b>

**MV Weights**

73.59%
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**Market Value of Debt:**

Long-Term Debt	1,032,984
PV of Operating Leases	2,379,987
<b>MV of Total Debt</b>	<b>3,412,971.00</b>

15.35%
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**Market Value of Leases**

<b>PV Operating Lease</b>	2,459,724.80
MV of total Lease Obligations	2,459,724.80

11.06%
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**Market Value of the Firm**

<b>22,234,719.80</b>
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100.00%
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**Estimated WACC**

<b>6.71%</b>
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**Advance Auto Parts Inc***Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models*

## Key Inputs:

CV EP	317468.6056
CV NOPLAT	\$ 731,616
CV Growth of NOPLAT	5.18%
CV Year ROIC	10.01%
WACC	6.71%
Cost of Equity	8.44%

<b>Fiscal Years Ending Dec. 31</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2030E</b>
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**DCF Model:**

Free Cash Flow (FCF)	68,811.04	560,674.49	665,862.99	767,259.90	650,846.64
Continuing Value (CV)					23,060,274.35
PV of FCF	64,483.83	492,375.14	547,977.66	591,715.76	17,784,231.75

Value of Operating Assets:	19,480,784.14
Excess Cash	1,328,056.37
Present Value of Operating Lease	(2,459,724.80)

Value of Equity	18,349,115.71
Shares Outstanding	68,748
Intrinsic Value of Last FYE	\$ 266.90
<b>Implied Price as of Today</b>	<b>\$ 282.45</b>

**EP Model:**

Economic Profit (EP)	320,161.96	313,700.68	313,058.68	276,630.62	317,468.61
Continuing Value (CV)					16,888,689.50
PV of EP	300,028.41	275,486.79	257,634.33	213,339.31	13,024,665.86

Total PV of EP	14,071,154.71
Invested Capital (last FYE)	5,409,629.44
Value of Operating Assets:	19,480,784.14
Excess Cash	1,328,056.37
Present Value of Operating Lease	(2,459,724.80)

Value of Equity	18,349,115.71
Shares Outstanding	68748.0
Intrinsic Value of Last FYE	\$ 266.90
<b>Implied Price as of Today</b>	<b>\$ 282.45</b>

**Advance Auto Parts Inc***Dividend Discount Model (DDM) or Fundamental P/E Valuation Model***Fiscal Years Ending Dec. 31****2021E****2022E****2023E****2024E****2025E**

EPS	\$	8.74	\$	9.22	\$	9.35	\$	8.90	\$	9.40
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**Key Assumptions**

CV growth of EPS	5.65%
CV Year ROE	10.65%
Cost of Equity	8.44%

**Future Cash Flows**

P/E Multiple (CV Year)					16.83
EPS (CV Year)					\$ 9.40
Future Stock Price					\$ 158.31
Dividends Per Share	2.5	4	4	4	6.5
CV					\$ 158.31
Discounted Cash Flows	2.3054309	3.401607	3.136868	2.892733	\$ 114.48

	1	2	3	4	4
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Intrinsic Value as of Last FYE	\$	126.22
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<b>Implied Price as of Today</b>	<b>\$</b>	<b>133.50</b>
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**Advance Auto Parts Inc***Relative Valuation Models*

Ticker	Company	Price	EPS		P/E		Est. 5yr EPS gr.	PEG 21	PEG 22	P/S
			2021E	2022E	21	22				
ORLY	O'Reilly Automotive Inc.	\$661.34	\$27.81	\$30.49	23.78	21.69	14.24%	167.00	152.32	3.52
AZO	AutoZone Inc.	\$1,821.09	\$95.19	\$109.35	19.13	16.65	11.08%	172.66	150.30	2.87
KMX	CarMax Inc.	\$139.97	\$7.04	\$7.32	19.88	19.12	12.32%	161.38	155.21	0.90
AN	AutoNation Inc	\$131.04	\$14.12	\$17.26	9.28	7.59	7.66%	121.15	99.11	0.40
			Average		<b>18.02</b>	<b>16.26</b>		<b>155.55</b>	<b>139.24</b>	<b>1.92</b>
AAP	Advance Auto Parts Inc	\$238.00	\$8.74	\$9.22	27.2	25.8	5.58%	488.5	462.9	1.46

**Implied Relative Value:**

<b>P/E (EPS21)</b>	<b>\$ 157.42</b>
<b>P/E (EPS22)</b>	<b>\$ 149.98</b>
<b>PEG (EPS21)</b>	<b>\$ 75.78</b>
<b>PEG (EPS22)</b>	<b>\$ 71.60</b>
<b>P/S (EPS 21)</b>	<b>\$ 313.07</b>
<b>P/S (EPS 22)</b>	<b>\$ 329.97</b>

**Advance Auto Parts Inc***Present Value of Operating Lease Obligations*

<b>Fiscal Years Ending Dec. 31</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Year 1	472,723	484,427	520,541	572,426	539,068
Year 2	333,775	445,143	481,812	482,494	455,024
Year 3	406,671	401,686	416,895	390,110	417,127
Year 4	358,497	340,356	349,470	350,636	338,564
Year 5	296,651	279,724	270,116	272,683	290,466
Thereafter	1,181,760	1,008,507	837,441	832,501	791,056
Total Minimum Payments	3,050,077	2,959,843	2,876,275	2,900,850	2,831,305
Less: Cumulative Interest	322,849	291,513	262,593	261,199	252,677
<b>PV of Minimum Payments</b>	<b>2,727,228</b>	<b>2,668,330</b>	<b>2,613,682</b>	<b>2,639,651</b>	<b>2,578,628</b>
<b>Implied Interest in Year 1 Payment</b>		<b>67,908</b>	<b>66,441</b>	<b>65,081</b>	<b>65,727</b>
Pre-Tax Cost of Debt	0	0	0	0	0
Years Implied by Year 6 Payment	4	4	3	3	3
Expected Obligation in Year 6 & Beyond	296,651	279,724	270,116	272,683	290,466
<b>Present Value of Lease Payments</b>					
PV of Year 1	461,238	472,658	507,894	558,519	525,971
PV of Year 2	317,754	423,776	458,685	459,334	433,183
PV of Year 3	377,745	373,115	387,242	362,362	387,457
PV of Year 4	324,907	308,466	316,726	317,783	306,842
PV of Year 5	262,324	247,356	238,860	241,130	256,855
PV of 6 & beyond	983,259	842,959	704,275	700,523	668,320
Capitalized PV of Payments	<b>2,727,228</b>	<b>2,668,330</b>	<b>2,613,682</b>	<b>2,639,651</b>	<b>2,578,628</b>



Advance Auto Parts Inc  
Sensitivity Tables

		Beta						
Equity Risk Premium	282.45	1.30	1.34	1.38	1.42	1.46	1.50	1.54
	5.24%	299.57	270.35	246.25	226.04	208.85	194.04	181.15
	5.12%	325.72	292.23	264.91	242.21	223.03	206.63	192.42
	5.00%	356.79	317.90	286.58	260.81	239.24	220.91	205.15
	4.88%	394.35	348.45	312.04	282.45	257.93	237.27	219.63
	4.76%	440.63	385.41	342.40	307.95	279.73	256.20	236.26
	4.64%	499.12	431.04	379.21	338.42	305.49	278.34	255.56
	4.52%	575.36	488.81	424.79	375.51	336.39	304.59	278.23

		WACC						
CapEx Per Store	282.45	6.56%	6.61%	6.66%	6.71%	6.76%	6.81%	6.86%
	155.00	243.30	236.14	229.37	222.88	216.85	211.06	205.55
	145.00	264.48	256.21	248.41	240.98	234.10	227.51	221.27
	135.00	287.94	278.32	269.30	260.74	252.85	245.33	238.22
	125.00	314.14	302.88	292.37	282.45	273.36	264.73	256.60
	115.00	343.65	330.36	318.05	306.48	295.94	285.98	276.65
	105.00	377.25	361.43	346.87	333.28	320.98	309.41	298.65
	95.00	415.97	396.92	379.54	363.45	348.97	335.46	322.95

		Risk Free Rate						
Pre-Tax Cost of Debt	282.45	1.33%	1.39%	1.45%	1.51%	1.57%	1.63%	1.69%
	2.79%	298.80	290.01	281.71	273.87	266.45	259.41	252.73
	2.69%	302.24	293.20	284.67	276.63	269.02	261.81	254.97
	2.59%	305.81	296.51	287.75	279.49	271.68	264.29	257.29
	2.49%	309.52	299.95	290.94	282.45	274.44	266.86	259.69
	2.39%	313.38	303.52	294.25	285.53	277.30	269.53	262.17
	2.29%	317.40	307.24	297.70	288.72	280.27	272.29	264.74
	2.19%	321.59	311.11	301.28	292.04	283.35	275.15	267.41

		CV Growth of NOPLAT						
Cost of sales	282.45	4.88%	4.98%	5.08%	5.18%	5.28%	5.38%	5.48%
	53.80%	240.54	249.23	258.98	269.95	282.57	297.02	313.82
	53.70%	244.31	253.11	263.00	274.12	286.90	301.55	318.59
	53.60%	248.08	257.00	267.02	278.28	291.24	306.09	323.35
	53.50%	251.85	260.89	271.04	282.45	295.58	310.62	328.11
	53.40%	255.62	264.78	275.06	286.62	299.92	315.16	332.87
	53.30%	259.39	268.67	279.07	290.79	304.26	319.69	337.63
	53.20%	263.16	272.55	283.09	294.96	308.60	324.22	342.39

		CV Growth Revenue Per Store						
Inventory % of Sales	282.45	3.70%	3.80%	3.90%	4.00%	4.10%	4.20%	4.30%
	48.00%	235.39	246.17	258.56	272.96	289.90	310.13	334.69
	47.00%	238.53	249.32	261.72	276.13	293.08	313.31	337.90
	46.00%	241.67	252.47	264.87	279.29	296.25	316.50	341.10
	45.00%	244.82	255.61	268.03	282.45	299.42	319.69	344.31
	44.00%	247.96	258.76	271.18	285.62	302.60	322.87	347.52
	43.00%	251.10	261.91	274.34	288.78	305.77	326.06	350.72
	42.00%	254.25	265.06	277.49	291.94	308.94	329.25	353.93