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### RESEARCH ARTICLE

#### INVESTMENT IDEAS IN INDIAN AUTOMOBILE SPACE FOR ASSET MANAGEMENT COMPANIES.

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#### Abstract

The Indian automobile sector contributes to 7.1% of the Gross Domestic Product (GDP). Between the facts that India is one of the fastest growing economies in the G20 and India's under-developed public transportation system, the industry is expected to grow rapidly and offer multiple investment opportunities in both the private and public markets. This paper follows a top down approach to find investment opportunities in the publicly traded equities from the automobile sector. This paper examines 2-wheelers, passenger vehicles and auto-ancillary sub-industries to identify the most attractive sectors. On finding the most attractive sub-industry, a comparative analysis is performed on the major stocks in the given space to look for under-valued stock(s) in the given industry while staying wary of value traps. A fundamental approach is taken while studying the financial performance as opposed to a technical approach. Once an under-valued stock is identified, the paper studies the company's prospects, cause for undervaluation and comparison of financial performance with its peers. Based on this data, projections are made for the company and accordingly 3 cases of valuation using Residual Income valuation model to evaluate the attractiveness of the investment.

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#### Introduction:-

The technological revolution of the 20th century in the United States was a phase of rapid economic growth. The wealth created however, was concentrated in the hands of a few industrialist given the ownership structures prevalent. As a result, people like John D. Rockefeller's, Andrew Carnegie's and Henry Ford amassed large amounts of wealth much to the disdain of the others. In modern day India however, most large organizations are publicly listed allowing almost anyone to participate in the wealth creation process. The sector studied in this paper is the automotive industry. The sector directly contributes to about 7.1% of the nation's GDP and almost 49% to the nation's Manufacturing GDP. India is expected to become the 4th largest automobile producer globally by 2020 after China, US & Japan. India's auto component industry is also expected to become the 3rd largest in the world by 2025. This paper attempts to identify the factors contributing to the growth in the automotive industry and identify the companies, and therefore stocks, most likely to benefit from the economic tailwinds.

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The Indian automobile sector enjoys advantages such as growing demand, innovation opportunities, rising investment and policy support. As a result, India has emerged as a global R&D hub. (Indian Brand Equity Foundation, October 2017)

The components sector is in a strong position to cash-in on India's cost-effectiveness, profitability and globally-recognized engineering capabilities. (KPMG, 2010) There are 4 major factors that favor the strong Indian auto-components industry, namely: (1) Robust demand (2) Export opportunities (3) Policy advantage (4) Cost effective manufacturing base. (India Brand Equity Foundation, September 2017) Booz & co.'s identified India as a key pillar of global automotive market. Indian automotive sales were likely to exceed the US market by mid 2030s. The global automotive game would be decided by the twin forces of India and China. (Booz & co., 2011) AT Kearney's report identifies how the auto industry in India could build momentum for growth. The automobile industry contributes to several important dimensions of nation building, namely (1) Generation of government revenue (2) Creating economic development (3) Encouraging people development (4) Fostering R&D and innovation. The report also lays out the role stakeholders can play in industry growth. (AT Kearney, 2013) Another paper attempts to understand the trends, overbought and oversold situations of the selected auto stocks in automobile sector in Indian stock market context. (Srivastava, 2014)

RC Bhargava, the chairman of Maruti Suzuki, expects the passenger car segment to grow at a rate of 8%-12% annually in the long term (CNBC TV18, 2017) Another interesting trend is the rise of the "scooterization" phenomenon. The share of scooters is likely to increase to ~40% of the overall 2W market in the next 2-3 years (from 33.7% in YTD FY18), overtaking entry-level motorcycles to become the single-largest segment. (Guleria, 2017) One of the hurdles India may face is the stifling of innovation by regulatory agencies which will turn "Made In India" into "Mad In India." (Bajaj, 2017)

Domestic hedge fund Avendus Alternate Strategies is concerned about valuations of the market in general which they believe are due to high liquidity. They do however believe that selective automobile stocks along with private banks, FMCG and affordable housing can be attractive purchases. (Holland, 2017) Nilesh Shah, principal of Kotak Mahindra AMC, is bullish on Automobile as well as Auto-ancillaries because he believes that the demand for automobiles will stay strong since public transport in India is poor and the global changes in oil prices are not reflected in Indian fuel prices. (Shah, 2017) Prakash Diwan of Altamount Capital believes that value can be found by latching on to select automobile players. (Diwan, 2016) Deven Choksey of KR Choksey Investment managers said India is emerging from the shock treatment of demonetization and signs of recovery are now visible in sectors such as cement, auto and capital goods. (Choksey, 2017)

India manufactures a new car every 10 seconds and a new bike every 2 seconds. The automobile industry contributes 7.1% to GDP and employs 19 million people directly. It has been identified as a lead indicator of the economy. (CNBC TV18, 2016). NOVONOUS estimates that the organized auto component industry in India is expected to grow at a Compound Annual Growth Rate(CAGR) of 12.5% by 2020. This sector supplies mainly to the OEMs. The 2-Wheelers business which has 77.5% of market share is expected to grow at a CAGR of 8% by 2020. (PR Newswire, 2016) The low penetration level of cars in India coupled with rise in the disposable income of its working population has made it an attractive destination for global automobile manufacturers. In 2009-10, this segment accounted for approximately 12.7% of the total passenger cars manufactured in India and its Year-on-year (YoY) growth rate was approximately 15%. (Gupta & Shekhar, 2010) India's low vehicle penetration and the strategic importance of the automotive sector to the country's economy means that there remain many opportunities in the Indian market. (Heernet Ventures Ltd; M2 Communications Ltd, 2008) India's auto ancillary industry is on a transition path which will witness India's gradual transformation into a full-scale Tier 1 supplier along with the rising exports of complex auto parts. (M2 presswire, 2013) The industry mainly caters to 2 segments – (1) Original Equipment manufacturers (OEM) and (2) Replacement market (Aftermarket). OEM dominates the auto component market contributing around 80% while the replacement market share is around 20%. (Credit Analysis & Research Limited, 2017) Production capacity expansion outpacing domestic consumption will drive export-oriented growth in the coming years. This will be one of the major factors that will positively impact the growth of the automobile component market. (Infiniti Research Limited, 2016)

#### **Gaps in Existing Literature: -**

The existing literature has identified the Indian Automotive Industry as a potential growth engine for the economy. It has also identified the favorable prospects for the industry. Several researchers and market experts have pointed

out the investment opportunities in the sector may be restricted to selective stocks at that point in time. With that being said, the following are the gaps in the existing literature:

1. Perishable nature of information on the stock market: Valuations in the stock market are subject to change based on new information and macroeconomic events. Therefore, it is important that the information is continuously checked.
2. Low guidance as to which stocks are likely to generate value: While existing literature identifies major growth opportunities in the automotive space, it does not provide guidance to individual investors or institutional investors about the potential winners in the space
3. Lack of rigorous fundamental analysis of individual companies: A significant amount of literature is dedicated to technical analysis which focuses on short term investment strategies. However, the transaction costs are likely to be significant

### **Research Methodology: -**

This study is predominantly descriptive. The analysis is based on secondary data collected from annual reports, databases, websites and interviews. The Indian automobile industry has been divided into three main sub-industries for the purposes of this study, (1) 2-wheeler manufacturers (2) Passenger car manufacturers and (3) Auto-ancillary manufacturers. Commercial vehicle manufacturers have been omitted since they have a significantly lower market share. Some of the companies in this study may sell their products in more than one sub-industry. In such cases the company has been classified under the sub-industry responsible for most of its revenue. A top-down approach has been taken in order to identify attractive investment opportunities. The following are the steps taken to identify investment opportunities:

#### **Studying the characteristics of the sub-industries:-**

Warren Buffett once said "When a management with a reputation for brilliance tackles a business with a reputation for bad economics, it is the reputation of the business that remains intact." The economics of each sub-industry has been identified on the basis of:

1. Sales Growth of the various segments
2. Industry Composition
3. Three Factor Du Pont Analysis from Bloomberg for FY17

#### **Comparative study of the companies within an industry:-**

A strictly fundamental approach is taken while analyzing each company. The financial ratios and metrics used are as follows:

1. Key statistics from Bloomberg
  2. Market share and sales
  3. Five Factor Du Pont Analysis from Bloomberg
- Based on the data, a bull case and bear case can be made for each stock.

#### **In-depth analysis of the winner(s):-**

Based on how compelling the cases are, one or more companies will be selected for further analysis. Base, optimistic and pessimistic cases are calculated using the Residual/Abnormal Earnings Model (University of Pennsylvania, 2015) for the company to understand the attractiveness of each investment

### **Data Analysis And Conclusions: -**

#### **Comparative Study of the Sub-Industries: -**

##### **Sales and Sales Growth: -**

The Indian Automobile industry produced a total 2,53,16,044 vehicles in April-March 2017 as against 2,40,16,599 vehicles in April-March 2016, registering a growth of 5.41%. Domestic sales of Passenger Vehicles grew by 9.23% in April-March 2017 year on year. Within the Two Wheelers segment, Scooters, Motorcycles and Mopeds grew by 11.39%, 3.68% and 23.02% respectively in April-March 2017 over April-March 2016.

##### **Industrial Composition: -**

Two-wheelers and passenger vehicles dominate Indian auto market. Sales of two-wheelers are expected to grow 8-10% in FY18. Two-wheelers and passenger cars accounted for 79% and 15% of production volume in FY17 respectively. Domestic passenger car sales are dominated by small and mid-size cars. Over 67% of export volumes comprised of two-wheelers, followed by 22% for passenger cars.

**Three Factor Du Pont Analysis**

Metric	2-wheelers	Passenger Vehicles	Auto Ancillaries
Return on Equity(RoE)	30.17%	17.03%	20.04%
Return on Assets(RoA)	19.30%	7.35%	9.52%
Net Profit Margin	14.98%	6.35%	9.79%
Asset Turnover	1.56	1.15	0.96
Equity Multiplier	1.81	3.06	2.58

**Table 1:-** 3-factor Du Pont analysis of automobile sub-industries

The 2-wheeler Industry delivers the greatest return on shareholders' equity. The sub-industry's significantly higher RoA enables it to do so even with modest leverage. The sub-industry has higher profit margins and asset turnover compared to the other sub-industries.

Comprising of nearly 80% of the automobile industry as well as having the most favorable financials, the 2-wheeler space is the most attractive space in the automobile industry by a significant margin.

**b. Peer Comparison Within The 2-Wheeler Industry: -****i. Key statistics**

Name	Mkt Cap (Rs.)	Rev Growth- 1 Yr	EPS Growth - 1 Yr	P/E
Median	812.04B	-1.65%	15.60%	24.86
Bajaj Auto Ltd	943.32B	-3.51%	-4.48%	23.12
Eicher Motors Ltd	867.41B	45.7%*	59.46%*	51.97
Hero MotoCorp Ltd.	756.66B	0.22%	12.03%	21.11
TVS Motors Co. Ltd.	327.50B	9.54%	19.16%	64.07

**Table 2:** Key statistics in the two-wheeler space. \*Change in accounting cycle

The industry average Price-earnings (P/E) of about 25 reflects investor optimism in the 2-wheeler space. This median revenue growth has been -1.65% whereas earnings per share(EPS) has grown at 15.60%. The median market capitalization is Rs. 812.04 billion. Bajaj Auto is currently the largest company based on market cap whereas TVS Motors is the smallest. Eicher motors has grown about 13-fold in the past 5 years and briefly surpassed Bajaj Auto to become most valuable 2-wheeler manufacturer in the country. This is largely due to the company's success in revitalizing the Royal Enfield brand. Despite doubling in value in the past 5 years, Hero MotoCorp has suffered setbacks due to agrarian distress. TVS motors, has appreciated 16.5 times in the past 5 years, greater than any of its peers. The company also has the highest EPS & revenue growth. As a result, the company has a P/E of 64 times.

**ii. Sales and Market Share**

Sr. No.	OEMs	CY 2016	CY 2015	YoY Growth
1	Hero MotoCorp	65,80,230	62,96,920	4.5%
2	HMSI	47,27,009	43,14,558	9.6%
3	TVS Motors	24,83,844	21,45,384	15.8%
4	Bajaj Auto	20,56,634	18,07,612	13.8%
5	Yamaha Motor India	7,86,475	5,94,608	32.3%
6	Royal Enfield	6,22,454	4,44,527	40%

**Table 3:-**wheeler sales numbers for calendar year 2016 (Economic times, 2013)

Hero MotoCorp retained its top spot in the 2-wheeler segment for the calendar year 2016. Honda Motorcycle and Scooter India(HMSI) however has been closing in quickly with their popular Honda Activa and continues to be their biggest threat. TVS Motors and Bajaj Auto have commendable growth numbers and have tried to attack Hero's market share in the entry level segment. TVS' Star City+ and Bajaj's CT100 have been introduced in the market to compete with Hero's extremely popular Splendor+. These efforts made by TVS and Bajaj have been largely unsuccessful however. Eicher Motors' Royal Enfield (RE) has found itself in a niche market which has manifested into a 40% growth in sales last year. The phenomenon of 'scooterisation' is what has allowed companies like Honda and TVS stay competitive in the 2-wheeler space.

**Five Factor Du Pont Analysis: -**

Ratio	Bajaj Auto	Eicher Motors	Hero MotoCorp	TVS Motors	Average
<b>Tax Burden</b>	76.50%	69.83%	73.37%	77.70%	74.35%
PAT/PBT (%)					
<b>Adjustment Factor</b>	0.87	1	0.94	1	0.95
Net Income/Unlevered Income					
<b>Interest Burden</b>	95.42%	99.92%	99.52%	91.82%	96.67%
PBT/PBIT(%)					
<b>Operating Margin</b>	26.15%	34.12%	17.36%	5.75%	20.85%
PBIT/Revenue (%)					
<b>Net Profit Margin</b>	19.10%	23.80%	12.70%	4.10%	14.93%
<b>Asset Turnover</b>	1.1	0.91	2.01	2.21	1.56
Revenue/ Avg Assets					
<b>Return on Assets</b>	21.00%	21.70%	25.50%	9.10%	19.33%
<b>Leverage Ratio</b>	1.22	1.76	1.47	2.79	1.81
Avg Assets/Avg Equity					
<b>Return on Equity</b>	22.22%	37.85%	35.17%	25.43%	30.17%

**Table 4.5:-**factor Du Pont Analysis of 2-wheeler companies.**Based on the Research Performed Above a Bullish or Bearish Argument Can be Made About Each Company Bajaj Auto**

Bull Case	Bear Case
Minimal debt	Choppy revenue and profit growth
High RoA and high RoE by general standards	Lack of a strong product in the scooter, entry level and premium market

**Table 5:-**Bullish and Bearish case for Bajaj Auto

The “Bear” case made for Bajaj auto is much stronger than the “Bull Case.” Therefore, buying Bajaj Auto stock does not seem like a strong investment idea.

**Eicher Motors**

Bull Case	Bear Case
Highest RoE among its peers and high RoA	Extremely high multiple which may not be justified by net income growth
Highest operating margins and net profit margins	Growth rate limited to the growth rate of Niche market
Niche market with loyal customer base	

**Table 6:-**Bullish and Bearish case for Eicher Motors

The bull case for Eicher Motors is pretty strong. However, the P/E multiple for the company is too high and therefore the company is likely to suffer from a time correction which could destroy value for investors that enter into a long position at this stage.

**Hero MotoCorp**

Bull Case	Bear Case
Producer of the highest selling bike in the country, Splendor.	Stiff competition in the rapidly growing scooter market from Honda’s Activa and TVS’ Jupiter.
High RoE and Highest RoA	

Lowest P/E ratio in comparison to its peers	
Suppressed demand from rural India due to demonetization could mean that the earnings are suppressed and that the current P/E multiple is misleadingly inflated.	

**Table 7:-**Bullish and Bearish case for Hero MotoCorp

At its current price levels, Hero MotoCorp appears to be an attractive investment opportunity. Hero MotoCorp mainly caters to the rural and agriculture segment. Suppressed earnings in the past two years due to poor monsoons and demonetization could also mean that the company is poised for growth. The upside and downside in an investment is therefore worth examining.

**TVS Motors**

Bull Case	Bear Case
High RoE and Highest Asset Turnover	Low RoA in an industry characterized by high RoAs
Low interest burden despite high equity multiplier	Heavy reliance on high gearing to produce RoE
Highest revenue growth rate in the industry and consistently high net profit growth rate	Lowest Operating and Net Profit Margins in the industry
	Astronomically high P/E Multiple

**Table 8:-**Bullish and Bearish case for TVS Motors

TVS Motors has an astoundingly high P/E multiple of over 60 times. Despite the fact that the company has seen phenomenal revenue and net profit growth, the multiple is too high to be justified. TVS Motors therefore does not appear to be an attractive investment opportunity at current price levels.

**d. Company in Focus: Hero Motocorp: -**

Hero MotoCorp Limited is the World's single largest two-wheeler motorcycle company. Hero MotoCorp Limited was incorporated in the year 1984 with the name Hero Honda Motors Ltd as a joint venture company between Honda Motor Company of Japan and Hero Group.

Time series Financial Statement analysis

Particulars	Mar 17 (12)	Mar 16 (12)	Mar 15 (12)
Tax Burden	72.59%	70.94%	71.34%
Interest Burden	99.44%	99.67%	99.65%
Operating Profit	17.19%	15.47%	12.00%
Net Profit Margin*	12.16%	10.78%	8.39%
Asset Turnover	2.13	2.48	2.71
Return on Assets*	25.91%	26.77%	22.69%
Adjustment Factor	0.995	0.997	0.997
Equity Multiplier	1.44	1.52	1.71
<b>Return on Equity</b>	<b>37.12%</b>	<b>40.57%</b>	<b>38.68%</b>

**Table 9:-**Hero MotoCorp Time Series Du Pont Analysis. \* Un-levered

Hero MotoCorp has consistently generated a high return on its shareholder's equity. The company has seen a decline in its asset turnover however it has been able to counter this by improving its un-levered net profit margin year after

year. A boost in operating margin has been a main contributor to the overall net profit margin expansion of 519 bps in 3 years.

Ratios	Mar 17 (12)	Mar 16 (12)	Mar 15 (12)	Mar 14 (12)
Return on Capital Employed	37.31%	43.22%	40.84%	37.62%
Return on Assets	25.78%	26.68%	22.61%	20.81%

**Table 10:-Hero MotoCorp Time Series profitability analysis**

The company has historically had high returns on asset and capital employed. A drop in RoCE in FY17 was because the capital employed grew at a higher rate than income. This could be because the company unsuspectingly had invested money in the capital block expecting a high demand from the market. The demand however was killed as a result of demonetization. The company's RoA has been in the low to mid-twenties over the past 4 years

Possible tailwinds	Possible risks
Aggressively growing 2-wheeler sector	Hero's top selling models are all motorbikes, a segment which is under siege due to "scooterization" of the Indian Market.
Accommodative Monetary policy	Possible failure of Hero Maestro which is Hero's venture in the scooter market.
New financing options for the consumer thanks to the rise in the Non-banking financial corporations(NBFCs)	
Suppressed demand from rural India in the past two years which is finally released.	

**Table 11:-Potential tailwinds and headwinds for Hero MotoCorp**

#### Valuation

Assumption	Value
High Growth Period	5 years
Discount Rate	7.5%
Total Asset Turnover	2.5x
Common sized Total Equity or Prop. Ratio	95.80%

**Table 12:** Common assumptions across the three scenarios for Hero MotoCorp

Table 12 shows the assumptions made during valuation. The discount rate taken into consideration is 500 bps over the yield of the Indian 10-year bond. A fast growth period of 5 years is expected. Total Asset Turnover is conservatively taken at 3x. The proprietary ratio is assumed to be ~0.96x, which has been the average over the past 4 years.

#### Scenario 1: Base Case

Assumptions	Value
Revenue Growth Rate	8.00%
Annual Net Profit Margin increment	0.5%
Long term revenue growth rate	4.00%

**Table 13:** Base Case Assumptions for Hero MotoCorp

In the base case it is assumed that the suppressed demand in FY16 and FY17 will manifest in a spike in sales in FY18, FY19 & FY20. Hero's record breaking 3 lakh unit sale on Dhanteras and the fact that Sales in Q2FY18 have grown 11% over Q2FY17 support this claim. The assumption that revenue would have grown at 7.5% in absence of these two extra-ordinary events means that we should expect a spike of 13.20% in FY19 and FY20 followed by 3 years of 7.5% revenue growth. The long-term growth rate is expected to be at 4%, slightly lower than the revenue CAGR over the past 4 years. We expect that Hero will be able to expand its margins by 50 basis points annually and

250 basis points over the next 5 years. This is about half the margin expansion the company has been able to achieve in the past 4 years. The company is not expected to take make significant capital structure decisions to affect the proprietary ratio.

Particulars	2018	2019	2020	2021	2022	2023	Terminal Year
Year	0	1	2	3	4	5	6
Revenue	Rs.32,774	Rs.37,102	Rs.42,000	Rs.45,360	Rs.48,989	Rs.52,908	
Total Asset Turnover Ratio	2.50	2.50	2.50	2.50	2.50	2.50	
Total Assets	Rs. 13,110	Rs. 14,841	Rs. 16,800	Rs. 18,144	Rs. 19,596	Rs. 21,163	
Total Equity	Rs.12,559	Rs.14,217	Rs.16,095	Rs.17,382	Rs.18,773	Rs.20,274	
Net Profit Margin	12.09%	12.59%	13.09%	13.59%	14.09%	14.59%	
Net Profit	Rs. 3,963	Rs. 4,672	Rs. 5,499	Rs. 6,165	Rs. 6,904	Rs. 7,720	
Equity Charge	Rs. 942	Rs. 1,066	Rs. 1,207	Rs. 1,304	Rs. 1,408	Rs. 1,521	
Residual Earnings	Rs. 3,021	Rs. 3,606	Rs. 4,292	Rs. 4,862	Rs. 5,496	Rs. 6,200	
Discounted Residual Earnings	Rs. 3,021	Rs.3,354	Rs. 3,714	Rs.3,914	Rs. 4,115	Rs. 4,319	Rs. 184,226

**Table 14:** Base Case residual earnings model for Hero MotoCorp. All numbers in Crores.

-	Market Cap	Per share	Total Return	Annualized return
Valuation	Rs. 216,199.68	Rs. 10,826.22	208.44%	32.52%

**Table 15:** Base Case Valuation for Hero MotoCorp

Based on the valuation model, Hero MotoCorp is expected to have a valuation of 2,16,200 Cr. and a per share price of ~ Rs 10,830 over a time horizon of 5 years.

#### Scenario 2: Optimistic Case

Assumptions	Value
Revenue Growth Rate	10.00%
Annual Net Profit Margin increment	1%
Long term revenue growth rate	5.00%

**Table 16:** Optimistic Case Assumptions for Hero MotoCorp

The optimistic case makes the same assumptions regarding suppressed demand as the base case. The growth rate after FY20 is assumed to be 10% which is slightly higher than we witnessed in FY15. Net profit margin is expected to expand by 100 basis points annually as witnessed in the preceding three years. The long-term revenue growth rate is 5%

Particulars	2018	2019	2020	2021	2022	2023	Terminal Year
Year	0	1	2	3	4	5	6
Revenue	Rs. 32,774	Rs. 37,102	Rs. 42,000	Rs. 46,200	Rs. 50,820	Rs. 55,902	
Total Asset Turnover	2.50	2.50	2.50	2.50	2.50	2.50	

Ratio							
Total Assets	Rs.13,110	Rs.14,841	Rs.16,800	Rs.18,480	Rs.20,328	Rs.22,361	
Total Equity	Rs.12,559	Rs.14,217	Rs.16,095	Rs.17,704	Rs.19,474	Rs.21,422	
Net Profit Margin	12.09%	13.09%	14.09%	15.09%	16.09%	17.09%	
Net Profit	Rs.3,963	Rs.4,857	Rs.5,919	Rs.6,973	Rs.8,178	Rs.9,555	
Equity Charge	Rs. 942	Rs. 1,066	Rs.1,207	Rs.1,328	Rs.1,461	Rs. 1,607	
Residual Earnings	Rs. 3,021	Rs. 3,791	Rs. 4,712	Rs. 5,645	Rs. 6,718	Rs.7,948	
Discounted Residual Earnings	Rs. 3,021	Rs. 3,527	Rs. 4,077	Rs. 4,544	Rs. 5,030	Rs. 5,536	Rs.333,829

**Table 17:-**Optimistic Case residual earnings model for Hero MotoCorp

-	<b>Market Cap</b>	<b>Per share</b>	<b>Total Return</b>	<b>Annualized return</b>
Valuation	Rs.369,102.47	Rs.18,482.85	426.58%	51.48%

**Table 18:-**Optimistic Case Valuation for Hero MotoCorp

In the optimistic scenario, Hero MotoCorp will have a valuation of 3,69,102 Cr. which translates to ~Rs. 18,480 per share.

### Scenario 3: Pessimistic case

Assumptions	Value
Revenue Growth Rate	8.00%
Annual Net Profit Margin increment	0%
Long term revenue growth rate	2.00%

**Table 19:-** Pessimistic Case Assumptions for Hero MotoCorp

The pessimistic case assumes that the company's revenues will grow faster than the yield on the 10-year for just another year and enter its slow growth period. We are also going to do away with the assumption that there was any suppressed demand in the market veiling the true earnings capacity of the company or that there is scope for margin expansion.

Particulars	2018	2019	Terminal Year
Year	0	1	
Revenue	Rs. 32,774.09	Rs. 35,396.02	
Total Asset Turnover Ratio	2.50	2.50	
Total Assets	Rs. 13,109.64	Rs. 14,158.41	
Total Equity	Rs. 12,559.03	Rs. 13,563.75	
Net Profit Margin	12.09%	12.09%	
Net Profit	Rs. 3,963.11	Rs. 4,279.38	
Equity Charge	Rs. 979.60	Rs. 1,057.97	
Residual Earnings	Rs. 2,983.50	Rs. 3,221.41	
Discounted Residual Earnings	Rs. 2,983.50	Rs. 2,988.32	Rs. 56,652.31

**Table 20:-**Pessimistic Case Residual Earnings Model for Hero MotoCorp.

-	<b>Market Cap</b>	<b>Per share</b>	<b>Total Return</b>	<b>Annualized return</b>
Valuation	Rs.72,199.66	Rs. 3,615.41	3.00%	1.49%

**Table 21:-Pessimistic Case Valuation for Hero MotoCorp**

Even with the most pessimistic assumptions, Hero Motocorp is undervalued by the market.

**Conclusion:-**

After a thorough analysis of the automobile sector and Hero MotoCorp, we can conclude that Hero MotoCorp is a great business that is undervalued by the market right. At a market cap of ~Rs. 750 billion, large asset management firms can add the company to their portfolio with low impact cost while at the same time contributing significantly to the firms returns

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