SUBMITTED BY

GROUP A10

AISHWARYA VERMA	MBA202325 - 013
ANANYAA SAIKIA	MBA202325 - 031
CHAITANYA VLVS	MBA202325 - 060
CHANDRA VIKAS	MBA202325 - 062
CHANDRA MOULIKA	MBA202325 – 063
CHITRALEKHA CH	MBA202325 - 067
DEEPTI DEBAJYOTI BEHERA	MBA202325 - 070

Introduction to Bajaj Auto

Bajaj Auto, the flagship company of Bajaj Group, is a two-wheeler and three-wheeler manufacturing company that exports to more than 70 countries. It was founded in 1945 and is headquartered in Pune, India. Its manufacturing plants are located in Maharashtra and Uttarakhand. It was founded by Jamnalal Bajaj in Rajasthan in the 1940s.

Chairman: Niraj Bajaj

MD and CEO: Rajiv Bajaj

Employees: 8000+

Bajaj Auto is listed on BSE and NSE and is a part of Nifty-50 and Nifty Auto Index.

Overview of the Automotive Industry in India

India is home to both domestic and international manufacturers. Major domestic companies include Tata Motors, Mahindra & Mahindra, Hero MotoCorp, Bajaj Auto, and TVS Motors.

International automakers like Maruti Suzuki (a subsidiary of Suzuki Motor Corporation), Hyundai, Toyota, Volkswagen, and Honda also have a significant presence.

Automotive manufacturing is concentrated in regions like Pune, Chennai, Haryana, and Gujarat, where major automobile plants and industrial clusters are located.

The industry produces many vehicles, including compact and luxury cars, motorcycles, scooters, three-wheelers, and commercial vehicles such as trucks and buses.

The automotive industry in India is a significant contributor to the country's economy and one of the largest industries in India. In FY-24, it employed over 2 million people and generated a whopping revenue of USD 126.67 billion, total vehicle production at 75,48,668 units.

It encompasses the manufacturing, sale, and maintenance of various vehicles, including cars, motorcycles, scooters, commercial vehicles, and electric vehicles (EVs).

Reason for choosing Bajaj Auto

1) **Market Leader** - Bajaj Auto is India's largest automobile player in the 2&3 wheelers segment. It is India's prominent and well-known automotive company, especially in the two-wheeler segment.

2) **Innovation and Sustainability**: Bajaj Auto has a history of introducing innovative technologies and a growing focus on sustainability, particularly in the context of electric mobility - The Bajaj Chetak Electric Scooter (with a range of 90 km). There also exists an emotional reason for selecting Bajaj Auto as we all grew up traveling Bajaj Chetak, and there is hardly anyone who has not travelled in the Bajaj autos.

3) **Brand Recognition -** Highly recognized and respected brand in the Indian and global automotive industries. It is known for its commitment to quality, performance, and affordability. Its vehicles are well-regarded in many countries due to their reputation for reliability and fuel efficiency.

Forecasting of annual statements (Along with Assumptions & Definitions)

Assumptions:

- ➢ The sales growth rate for next 5 years remains same as average sales growth rate of last 5 years i.e. 8.13%
- ➢ Operating profit margin for the forecasted period remains constant at average of last 10 years at 18.51%
- ➢ Other income growth rate remains same as average of last 5 years at 5.66%

Depreciation:

- ➢ Rate of Depreciation: Net Block(Net PPE)/Depreciation expense in that year
- ➢ Rate of depreciation remains constant throughout the forecasted period
- ➢ Rate of Depreciation*Net PPE(each year of forecasted period)= Depreciation in each year of forecasted period

Interest expense:

- ➢ Total debt = Borrowings (Long term and short term borrowings)
- ➢ Average total debt = (average of previous and current years borrowings)
- ➢ Interest rate (historical) = interest expense/average total debt in the given year
- ➢ Average interest rate = average of last 10 years
- ➢ Assuming this average interest rate remains constant throughout forecasted period
- ➢ Interest expense = avg interest rate * borrowings

PBT

- ➢ PBITDA + Other Income - Depreciation-Interest expense

Tax

- ➢ Tax Rate (Historical) = tax paid / PBT
- ➢ Avg tax rate = average of past 10 years
- ➢ Assuming the avg tax rate remains constant for next 5 years
- ➢ Tax (forecasted period) = tax rate*PBT

PAT

- ➢ PAT = PBT – Tax

PBIT

- ➢ PBIT= PBT + Interest Expense

Forecasted P & L statement

Narration	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29
Sales	48,518.40	52,462.94	56,728.18	61,340.18	66,327.14
Expenses	38,131.72	40,154.11	42,141.47	44,054.06	45,842.04
Operating Profit (PBITDA)	10,386.67	12,308.83	14,586.71	17,286.12	20,485.09
add: Other Income	2,746.41	2,969.70	3,211.13	3,472.20	3,754.49
less: Depreciation	560.04	661.40	762.76	864.12	965.48
less: Interest	14.83	16.16	17.59	19.12	20.74
Profit before tax (PBT)	12,558.22	14,600.96	17,017.48	19,875.08	23,253.35
Tax	3,193.82	3,713.33	4,327.90	5,054.65	5,913.82
Net profit (PAT)	9,364.40	10,887.63	12,689.58	14,820.43	17,339.54

Forecasted Balance Sheet

BALANCE SHEET	FORECASTED VALUES OF BALANCE SHEET					Calculations and assumptions
Equity and Liabilities	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	
Equity Share Capital	279.18	279.18	279.18	279.18	279.18	Asuumed to be constant
Reserves	36,685.80	40,022.33	43,581.23	47,380.56	51,439.88	retained earnings plus other reserves
Borrowings	427.32	465.89	507.03	550.96	597.88	based on constant historical average of Other other D/V(Book)
Other Liabilities	8,798.70	9,592.89	10,440.01	11,344.36	12,310.59	based on constant historical average of Other other liabilities / total eq+lia
Total	46,191.01	50,360.30	54,807.45	59,555.05	64,627.54	Taken same as total assets
Assets						
Net Block	4,017.37	4,744.48	5,471.58	6,198.69	6,925.80	Net block assumed to grow at a constant rate same as avg of change in capes in last 3 years from 2026 and for 2025 800 cr
Capital Work in Progress	135.09	159.54	183.98	208.43	232.88	based on constant historical average of Capital Work in Progress/net ppe
Investments	32,745.85	35,408.09	38,286.77	41,399.48	44,765.26	based on constant historical average of Investments/sales
Other Assets	9,292.70	10,048.20	10,865.11	11,748.45	12,703.60	based on constant historical average of Other Assets/sales
Total	46,191.01	50,360.30	54,807.45	59,555.05	64,627.54	sum total

Capex of 800 cr in 2025

https://auto.economictimes.indiatimes.com/news/industry/bajaj-auto-plans-inr-800-cr-capex-in-fy25-upcoming-cng-bike-to-launch-in-phases/109417604#:~:text=New%20Delhi%3A%20Pune%2Dbased%20Bajaj,FY%202023%2D24%20as%20well.

VALUATION PROCESS

DISCOUNTED CASH FLOW MODEL:

FCFF Calculation (Along with Assumptions and Definitions)

1) FCFF Using PBIT

PBIT(1-Tc) + Depreciation-Capex-Non Cash WC

Capex:

Capex =Net Block + Capital WIP	2,702.97	2,077.91
Change in Capex		**-625.06**

Change in Non Cash Working Capital:

non cash current assets (Inventories,trade recievebles,short term loans given)	1531	1451
non debt current liabilities (Trade payables and Advnces from customers)	2,201	2,202
Non Cash Working Capital	-670	-751
change in NC WC		**-81**

2) FCFF Using PBITDA

PBITDA(1-Tc) +Depreciation*Tc-Capex-Non cash WC

3) FCFF Using PAT

PAT + Interest(1-Tc) + Depreciation -Capex-Non cash WC

Average FCFF

Assuming the FCFF for the forecasted period = Average of FCFF using the above 3 formula.

FCFF Growth Rate: (11.85%)

Average of fcff growth rate for past 8 and next 5 years.

FREE CASH FLOWS	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29
FCFF using PAT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93
FCFF using PBIT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93
FCFF using PBITDA	6,987.57	8,595.09	10,319.43	12,358.11	14,769.29
Avg FCFF	8,352.86	10,071.38	11,915.75	14,084.20	16,635.72

Beta

Using 1 year daily data for Bajaj Auto Stock and NIFTY 50 Index, Beta= 0.537

Regression Statistics								
Multiple R	0.293659313							
R Square	8.62%							
Adjusted R Square	0.082428441							
Standard Error	0.014751728							
Observations	242							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0.004928905	0.004928905	22.64981489	3.36E-06			
Residual	240	0.052227237	0.000217613					
Total	241	0.057156142						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.00306173	0.000955962	3.202772558	0.001545335	0.001178582	0.004944879	0.001178582	0.004944879
Beta	0.537060272	0.112847177	4.759182166	3.36E-06	0.314762885	0.759357659	0.314762885	0.759357659

Using 5 Year monthly data for Bajaj Auto Stock and NIFTY 50 Index, beta= 1.073

Multiple R	0.666747223							
R Square	44.46%							
Adjusted R Square	0.434975167							
Standard Error	0.064523066							
Observations	60							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0.19325774	0.19325774	46.42018933	6.03E-09			
Residual	58	0.241467109	0.004163226					
Total	59	0.43472485						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.010182952	0.008633629	1.179452075	0.243033646	-0.007099135	0.027465039	-0.007099135	0.027465039
Beta	1.072991294	0.157486287	6.813236333	6.03E-09	0.75774824	1.388234349	0.75774824	1.388234349

Average Beta Calculation

Average of Beta through both the above methods

Beta = 0.805

Assuming the Capital Structure of the firm does not change for the next 5 years.

Hence Beta also remains the same at 0.805 due to no change in market leverage.

WACC

		Assumptions and procedure of beta Calculations		
	1	Equity beta through regression of daily 1 year data		Beta =0.537
	2	Equity beta through regression of monthly 5 year data		Beta=1.073
	3	Average equity beta = 0.805		
	4	Assuming the Book Value of current debt (Long term+Short term borrowings)/current market cap) = D/V remains constant for next 5 years		
	5	Assuming tax rate ramins same as avg of last 10 years (Tax / PAT)		
	6	WACC = (1-Tc)(D/V)(Kd)+(E/V)(Ke)		
	7	where Kd= same as risk free rate (assumed)		
	8	where ke= Rf+(Beta ... Avg of 2 methods) * {E(Rm)-Rf}		
	9	Since D/V remains constant relevered beta becomes same as eq beta		
	10	where E(Rm) is average annual growth rate of market returns based on 5 year monthly data of NIFTY 50)		
	11	Final WACC Comes out to be	**WACC**	**16%**

Cost of debt is assumed to be same as risk free rate

Date	Price	Open	High	Low	Change %
06-09-2024	6.968	6.969	6.973	6.964	1.65%

https://in.investing.com/rates-bonds/india-10-year-bond-yield-historical-data

VALUE OF THE FIRM CALCULATION

We calculated the value of the firm under 3 approaches – Adjusted Present Value (APV), Weighted Average cost of capital (WACC) and Capital Cash Flows(CCF).

APV approach:

Under this approach, we calculated the terminal value using the FCFF calculations by discounting at the Cost of equity rate. This K_e is calculated using the CAPM model which equals 16.44%.

$$CAPM = R_f + \beta \, [E(R_m) - R_f \,]$$

> where R_f is the Risk-free rate taken as per the standard data available, i.e 6.97%

$E(R_m)$ is the Expected market returns which is calculated by taking the average annual returns of Nifty Index

β is the Beta which is calculated by running a simple regression between the Bajaj Auto stock returns and the Nifty Index.

Risk Free rate	6.97%	6.97%
Market risk premium	11.77%	11.77%
beta * market risk premium	12.63%	9.47%
CAPM		
Cost of equity	19.59%	16.44%

- We then calculated the Present value of FCFF including Terminal value using K_e as the discounted rate.
- The total debt 1,912 ·
- The PV of expected Bankruptcy costs is ignored due to non- availability of data.

  Based on the above 3 points, we calculated the value of the firm by adding all the above 3 values.

  APV = PV of unleavened firm + PV of Tax shield benefits - PV of Expected bankruptcy costs

FORECASTED VALUES								
FREE CASH FLOWS	**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**			
FCFF using PAT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93			
FCFF using PBIT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93			
FCFF using PBITDA	6,987.57	8,595.09	10,319.43	12,358.11	14,769.29			
Avg FCFF	8,352.86	10,071.38	11,915.75	14,084.20	16,635.72			
Growth Rate -Single stage	11.85%							
Wacc	16%							
Cost of equity (r)	16.44%							
Debt	1,912							

Adjusted Present Value Approach			**Mar-25**	**Mar-26**	**Mar-27**	**Mar-28**	**Mar-29**
Average Fcff			8,352.86	10,071.38	11,915.75	14,084.20	16,635.72
Terminal Value	Fcff(1+g)/ r - g						405268.0098
Total Cash Flows			8,352.86	10,071.38	11,915.75	14,084.20	421,903.73

Computation of PV of FCFF	**Total FCF**	**PV of r 16.44%**	**PV**
Mar - 25	8,352.86	0.8588049361	7173.478685
Mar - 26	10,071.38	0.7375459183	7428.106622
Mar - 27	11,915.75	0.6334080753	7547.529454
Mar - 28	14,084.20	0.5439739817	7661.440104
Mar - 29	421,903.73	0.4671675406	197099.7275
		NPV	**226910.28**

NPV	226910.28	
	Tax rate	0.2543209787
	Interest Exp	133.22816
	COST OF DEDT	6.97%
	tax shelld Intersee	33.88
	PV of tax shelld	486.26

APV [Value of Firm]	227396.54	fig in Rs. (in crores)
Value of Debt	1,912	
Value of Equity	225484.54	fig in Rs. (in crores)
No. of Outstanding Shares	27.92031295	in crores
Value of Shares	8076.00	

The value of the firm under APV is 227396.54 RS in cr

WACC Approach:

Under this approach, we calculated the terminal value using FCFF and discounted it with WACC rate.

Upon calculating this, we discounted the FCFF including terminal value with WACC rate to arrive at the value of the firm.

FREE CASH FLOWS	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29		
FCFF using PAT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93		
FCFF using PBIT	9,035.51	10,809.53	12,713.90	14,947.25	17,568.93		
FCFF using PBITDA	6,987.57	8,595.09	10,319.43	12,358.11	14,769.29		
Avg FCFF	8,352.86	10,071.38	11,915.75	14,084.20	16,635.72		
Growth Rate -Single stage	11.85%						
Wacc	16%						
Cost of equity (r)	16.44%						

WACC Approach

			Mar-25	Mar-26	Mar-27	Mar-28	Mar-29
Average Fcff			8,352.86	10,071.38	11,915.75	14,084.20	16,635.72
Terminal Value	Fcff(1+g)/ WACC - g						411636.2803
Total Cash Flow			8,352.86	10,071.38	11,915.75	14,084.20	428,272.00

Computation of PV of FCFF	Total FCF	PV @ 16%	PV
Mar - 25	8,352.86	0.8593291344	7177.857241
Mar - 26	10,071.38	0.7384465613	7437.177341
Mar - 27	11,915.75	0.6345686444	7561.358499
Mar - 28	14,084.20	0.5453033239	7680.162831
Mar - 29	428,272.00	0.4685950333	200686.132
		NPV	**230542.69**

NPV [Value of Firm]	230542.69	fig in Rs. (in crores)
Value of Debt	1,912.00	
Value of Equity	228630.69	fig in Rs. (in crores)
No. of Outstanding Shares	27.92031295	in crores
Value of Shares	8,188.69	

The value of the firm under APV is 230542.69 RS in cr

Capital Cash Flow (CCF) Approach:

Under this approach, we calculate the value of the firm by discounting the FCFF at the pre-tax WACC rate.

The Debt/Value ratio remains constant for the next 5 years.

- First, we calculate the total cash flows including the terminal value by discounting using WACC.
- Then, we calculate the value of debt outstanding by taking the PV of the remaining cash flows at the end of each year.
- We calculate the tax shield on interest using the debt outstanding.
  Tax Savings on Interest= Debt Outstanding*Cost of Debt*Tax Rate
- Next,we calculate the Terminal Value using FCFF and pre-tax WACC as the discount rate.
- Finally, we calculate the PV of FCFF including terminal value at the pre-tax Wacc rate to arrive at the value of the firm.
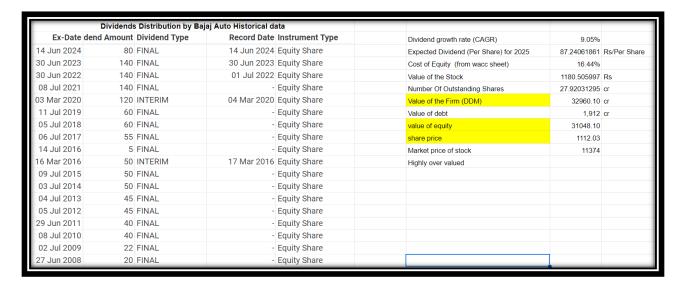 Capital Cash Flows= Free Cash Flow + Expected Interest Tax Shield

The value of the firm under CCF Approach is Rs. 230,542.69 (in crores).

	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	
Average FCFF	8,352.86	10,071.38	11,915.75	14,084.20	16,635.72	
Terminal Value [Fcff(1+g)/(Wacc-g)]					411636.28	
Total	8,352.86	10,071.38	11,915.75	14,084.20	428,272.00	

Years	Firm Value	Debt	Cost of Debt	Debt Interset	Tax Rate	Interest Tax Shield
Mar-25	$230,542.69	$1,456.24	6.97%	$101.47	0.2543209787	$25.81
Mar-26	$259,929.31	$1,641.87	6.97%	$114.41	0.2543209787	$29.10
Mar-27	$292,407.96	$1,847.02	6.97%	$128.70	0.2543209787	$32.73
Mar-28	$328,358.95	$2,074.11	6.97%	$144.52	0.2543209787	$36.76
Mar-29	$368,026.61	$2,324.67	6.97%	$161.98	0.2543209787	$41.20

Capital Cash Flow Approach						
	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	
CCF [Free cash flow+Interest tax shield]	8,378.67	10,100.48	11,948.48	14,120.96	16,676.92	
Terminal Value [last year ccf(1+g)/(pre-tax wacc-g)]					411636.2803	
Total	8,378.67	10,100.48	11,948.48	14,120.96	428,313.20	

Firm Value	230,542.69	fig in Rs. (in crores)
Value of Debt	1,912	
Value of Equity	228,630.69	fig in Rs. (in crores)
No. of Outstanding Shares	27.92031295	in crores
Value of Shares	8,188.69	

DIVIDEND DISCOUNT MODEL

The Dividend Discount Model (DDM) values a stock based on the present value of its future dividend payments. For Bajaj Auto, historical dividend data from 2009 to 2024 was used. The Compound Annual Growth Rate (CAGR) of dividends over this period is 9.05%, and this growth rate was applied to estimate the expected dividend for FY2025, which is Rs. 87.24 per share. Using a cost of equity of 16.44%, the DDM formula gives a stock value of Rs. 1,180.51 per share.

Value of Stock=Cost of Equity−Dividend Growth Rate Expected Dividend for Next Year

Dividends Distribution by Bajaj Auto Historical data							
Ex-Date	dend Amount	Dividend Type	Record Date	Instrument Type			
14 Jun 2024	80	FINAL	14 Jun 2024	Equity Share	Dividend growth rate (CAGR)	9.05%	
30 Jun 2023	140	FINAL	30 Jun 2023	Equity Share	Expected Dividend (Per Share) for 2025	87.24061861	Rs/Per Share
30 Jun 2022	140	FINAL	01 Jul 2022	Equity Share	Cost of Equity (from wacc sheet)	16.44%	
08 Jul 2021	140	FINAL	-	Equity Share	Value of the Stock	1180.505997	Rs
03 Mar 2020	120	INTERIM	04 Mar 2020	Equity Share	Number Of Outstanding Shares	27.92031295	cr
11 Jul 2019	60	FINAL	-	Equity Share	Value of the Firm (DDM)	32960.10	cr
05 Jul 2018	60	FINAL	-	Equity Share	Value of debt	1,912	cr
06 Jul 2017	55	FINAL	-	Equity Share	value of equity	31048.10	
14 Jul 2016	5	FINAL	-	Equity Share	share price	1112.03	
16 Mar 2016	50	INTERIM	17 Mar 2016	Equity Share	Market price of stock	11374	
09 Jul 2015	50	FINAL	-	Equity Share	Highly over valued		
03 Jul 2014	50	FINAL	-	Equity Share			
04 Jul 2013	45	FINAL	-	Equity Share			
05 Jul 2012	45	FINAL	-	Equity Share			
29 Jun 2011	40	FINAL	-	Equity Share			
08 Jul 2010	40	FINAL	-	Equity Share			
02 Jul 2009	22	FINAL	-	Equity Share			
27 Jun 2008	20	FINAL	-	Equity Share			

Assumptions:

1. **Constant Growth**: Assumes a constant dividend growth rate (9.05%) perpetually.
2. **Stable Cost of Equity**: The cost of equity is assumed to remain at 16.44%.
3. **Consistent Payout Policy**: Assumes Bajaj Auto will maintain a similar dividend payout policy.

Dividend Historical Data is taken from:

https://trendlyne.com/equity/Dividend/BAJAJ-AUTO/144/bajaj-auto-ltd-dividend/

Conclusion and Interpretation:

The DDM estimates Bajaj Auto's stock value at Rs. 1,180.51, indicating a strong dividend-paying capability. The expected dividend growth suggests stable financial health and potential profitability, appealing to dividend-seeking investors.

Limitations:

1. **Growth Assumptions**: Constant growth may not be realistic over time.
2. **Exclusion of Other Factors**: The model does not consider other market dynamics affecting stock prices.
3. **Sensitivity**: The value is highly sensitive to changes in growth rate or cost of equity.

While DDM provides a useful valuation approach for dividend-paying stocks, it should be complemented with other models for a comprehensive analysis.

CFROI Valuation

The Cash Flow Return on Investment (CFROI) approach is a valuation method that measures a company's performance by comparing its internal rate of return (IRR) on capital invested with its cost of capital (WACC). For Bajaj Auto, CFROI is calculated using forecasted Net Operating Profit After Tax (NOPAT) and depreciation for the years FY2025 to FY2029. Gross Cash Flow (GCF) is derived by adding NOPAT and depreciation, while Gross Investment (GI) is assumed to be equal to capital expenditure (Capex). CFROI is then calculated as the ratio of GCF to GI for each year.

Assumptions:

1. **Constant Tax Rate**: The corporate tax rate (Tc) is assumed constant at 25%.
2. **Capex Equal to GI**: Gross Investment (GI) is assumed to be the same as capital expenditure each year.
3. **Constant WACC**: The Weighted Average Cost of Capital (WACC) is assumed to remain steady at 16% over the forecast period.

CFROI Approach						
	Mar-25	Mar-26	Mar-27	Mar-28	Mar-29	Mar-30
EBIT	12,573.05	14,617.13	17,035.08	19,894.20	23,274.10	
(1-Tc)	0.75	0.75	0.75	0.75	0.75	
NOPAT = EBIT*(1-Tc)	9375.46	10899.69	12702.70	14834.69	17355.01	
GCF=NOPAT+Depritiation	560.04	661.40	762.76	864.12	965.48	
GI (Assumed to be same as Capex)	899.99	751.56	751.56	751.56	751.56	
CFROI = GCF/GI	62.23%	88.00%	101.49%	114.98%	128.46%	
WACC	16%	16%	16%	16%	16%	
EVA = (cfroi-wacc)*gi	412.7106354	538.3699119	639.7314061	741.0929003	842.4543944	978.2276121
g (EVA Growth rate)		30.45%	18.83%	15.84%	13.68%	
avg EVA Growth rate					16.12%	
Terminal Value					385950.6228	
Total value of eva at tht yr	412.7106354	538.3699119	639.7314061	741.0929003	386793.0772	
NPV	182,811.60	cr				
Value of Debt	1,912					
Value of Equity	180,899.60					
Number of Shares	27.92031295					
Share price	6,479.14					

Conclusion and Interpretation:

The CFROI for Bajaj Auto shows a rising trend from 62.23% in FY2025 to 128.46% in FY2029, well above the WACC of 16%. This indicates that Bajaj Auto is generating returns far exceeding its cost of capital, suggesting efficient use of capital and strong value creation. The Economic Value Added (EVA) is positive in each year and shows growth, further reinforcing the company's ability to generate wealth for its shareholders. The Net Present

Value (NPV) of EVA is calculated to be Rs. 182,811.60 crore, and the implied share price is Rs. 6,479.14.

Limitations:

1. **Assumption of Constant Capex**: Assuming Capex is equal to GI may not capture future variations in capital expenditures.
2. **Sensitivity to WACC and Growth Rates**: The model is highly sensitive to changes in WACC and growth rates, impacting the calculated EVA and CFROI.
3. **Static Assumptions**: Constant tax rate and WACC assumptions may not hold in dynamic market conditions.

The CFROI approach provides a robust measure of performance by comparing cash returns against the cost of capital, but it should be used alongside other models for a more comprehensive valuation.

RELATIVE VALUATION MODEL

The relative valuation method, also known as multiples-based valuation, involves comparing the company's valuation metrics to those of similar companies or industry benchmarks.

1. Choose Comparable Companies

- Select companies in the same industry or with similar industry, business models, market positioning, growth prospects, and risk profiles.

- Ensure the companies have similar financial structures (e.g., similar debt levels).

- In our case, we have taken **TVS Motor Co.** and **Hero MotoCorp** as they are **highly comparable** to Bajaj Auto, given their direct competition in two-wheelers and, in TVS's case, three-wheelers as well.

- **Eicher Motors** is **partially comparable**, particularly in the premium motorcycle segment, but its overall focus is narrower and more premium.

- **Atul Auto** is **partially comparable** for Bajaj's three-wheeler segment but not for two-wheelers.

2. Select the Appropriate Multiples

We use EV/EBITDA, EV/Sales, P/E multiples to come at Bajaj Auto's Valuation. We take different multiples to adjust the following differences

- We used **EV/EBITDA** as it provides a good comparison of core operational performance across firms with different debt levels, especially for TVS, Hero, and Atul Auto.

- We used **EV/Sales** for companies like Atul Auto (for the three-wheeler segment) with inconsistent profitability, but steady Revenue.

- We used **P/E Ratio** for direct comparisons with mature and consistently profitable companies like Hero and TVS, focusing on Bajaj Auto's equity valuation.

By using these multiples in combination, we can get a comprehensive view of Bajaj Auto's valuation relative to its peers.

3. Calculate the Multiples for Comparable Companies

- Obtain the data from financial statements or reliable financial data sources (e.g., market price, revenue, EBITDA, Net Profit etc.).

- For each comparable company, calculate the selected multiple (e.g., P/E, EV/EBITDA, EV/Revenue).

Company	Market Data							Financials			Valuation		
	Share Price	Shares Outstanding	Equity Value	Debt	Cash	Net Debt	Enterprise Value	Revenue	EBITDA	Net Income	EV/Revenue	EV/EBITDA	P/E
Bajaj Auto	10847.6	27.93	302,973	1911.74	955.32	956.42	303,930	46,491	9,200	8,006	6.5x	33.0x	37.8x
TVS Motor Co.	2,765	47.51	131,370	26005.7	2425.73	23579.97	154,950	40,496	5,743	1,822	3.8x	27.0x	72.1x
Hero Motocorp	5,745	20	114,906	606.41	696.47	-90.06	114,816	39,148	5,471	4,074	2.9x	21.0x	28.2x
Eicher Motors	4,737	27.41	129,847	419	146	273	130,120	16,942	4,472	4,184	7.7x	29.1x	31.0x
Atul Auto	660.75	2.78	1,837	144	22	122	1,959	603	52	17	3.3x	37.8x	106.5x
High											7.7x	37.8x	106.5x
75th Percentile											6.5x	33.0x	72.1x
Average											4.8x	29.6x	55.1x
Median											3.8x	29.1x	37.8x
25th Percentile											3.3x	27.0x	31.0x
Low											2.9x	21.0x	28.2x

Bajaj Auto Comparable Valuation	EV/Revenue	EV/EBITDA	P/E
Implied Enterprise Value	177,887	267,710	303,930
Net Debt	956.42	956.42	956.42
Implied Market Value	176,930	266,754	302,973
Shares Outstanding	27.93	27.93	27.93
Implied Value per Share	6334.8	9550.8	10847.6
	Overvalued	Overvalued	Overvalued

4. Determine the Valuation of the Target Company

- Once we have calculated the multiples for the comparable companies, apply the median or average multiple to your target company's metrics.

- For example, if the median EV/EBITDA is

Step 1: Gather the Data

1. EBITDA of Bajaj Auto: 9200 cr

2. EV/EBITDA multiple of Bajaj Auto : 33x

3. Median EV/EBITDA multiple of Comparable Firms : 29.1x

4. Net debt of Bajaj Auto: 956.42 Cr. (Debt: 1911.74 Cr., Cash: 955.32 Cr.).

Step 2: Calculate the Enterprise Value (EV)

Find the EV/EBITDA Multiple

Where as EV can be found as:

EV = EBITDA × [Median EV/EBITDA Multiple]

EV=9200×29.1= 267,710 Cr.

So, the Enterprise Value of TargetCo is 267,710 Cr.

Step 3: Calculate the Equity Value

To get the Equity Value, subtract the Net Debt from the Enterprise Value:

Equity Value= EV−Net Debt

= 267,710 - 956.42

= 266,754 Cr.

So, the Equity Value of Bajaj Auto is 266,754 Cr.

Step 4: Determine Value Per Share (optional)

Bajaj Auto has 27.93 Cr. shares outstanding, the Value per Share would be:

Value per Share= Equity Value / Number of Outstanding Shares

= 266,754 / 27.93

= 9550.8 per share

5. Final Valuation

- The final valuation is based on the range of values from the multiples we have applied i.e. Range of 177,887 Cr. to 303,930 Cr.

ECONOMIC VALUE-ADDED MODEL

Firm value using the Economic Value Added (EVA) method, followed these steps:

1. Calculated Net Operating Profit After Taxes (NOPAT)

- NOPAT = Operating Profit (EBIT) - Taxes

- This represents the company's operating profit after taxes but before considering the cost of capital.

2. Determine the Invested Capital

- Invested Capital = Debt +shareholders' Equity

- This reflects the total funds invested in the business (equity and debt).

3. Weighted Average Cost of Capital (WACC) = 16%

4. Economic Value Added (EVA)

- EVA = NOPAT - (Invested Capital $\times$ WACC)

- EVA shows the company's economic profit after accounting for the cost of capital.

5. Projected EVA Over Future Periods

- Estimate the company's EVA for the next five years based on expected growth in NOPAT and invested capital.

6. Calculated the Present Value of Future EVA

- Discount the future EVAs to their present value using the WACC as the discount rate:

$$PV(EVA) = EVA/ (1 + WACC)^t$$

7. Determined the Terminal Value (TV)

- calculate the firm's terminal value using a perpetuity approach:

$$TV = EVA/ (WACC - g)$$

8. Calculated the Firm Value

- Firm Value = Invested Capital + Present Value of Future EVAs + Present Value of Terminal Value

		E	E	E	E	E		
				EVA = NOPAT-(Invested Capital*WACC)				
	31-03-2024	31-03-2025	31-03-2026	31-03-2027	31-03-2028	31-03-2029	Terminal value
EBIT	10,100.40	12,573.05	14,617.13	17,035.08	19,894.20	23,274.10	
(1-Tax rate)	0.7457	0.7457	0.7457	0.7457	0.7457	0.7457	
NOPAT	7531.66	9375.46	10899.69	12702.70	14834.69	17355.01	
Invested Capital (DEBT+capita leases	2,190.92	706.50	745.07	786.21	830.14	877.06	
WACC	16%	16%	16%	16%	16%	16%	
EVA	7173.01	9259.80	10777.72	12574.00	14698.79	17211.43	463879.213
Growth Rate -Single stage	11.85%	0.118500					
WACC	16%	0.16					
Present value of exsisting eva	39,975.55						
PV of terminal value	217371.4953						
firm value	2,59,537.96						
Net Debt	1,912						
Value of equity	2,57,625.96						
O/S shares	27.92031295						
Price per share	9227.187						

Interpretation:

5. EVA Growth: The steady increase in EVA over time means the company is becoming more efficient in creating value for its shareholders, by generating profits above the cost of capital.

6. Terminal Value: A significant part of the company's worth comes from the terminal value, which represents the long-term future growth. This shows how important it is to get those long-term growth predictions right.

7. Equity Value: The equity value represents the total worth that belongs to shareholders after accounting for the company's debts.

8. Price per Share: The calculation leads to a price per share of ₹9,227.19, giving a rough estimate of what each share might be worth in the market.

Limitations:

1. Assumed Constant WACC: The model assumes that the cost of capital (WACC) stays the same at 16%, but in reality, it could change due to fluctuations in the market, interest rates, or the company's financial decisions.

2. Growth Rate: The model uses a single growth rate (11.85%) for the terminal value. This may oversimplify things because the company's growth rate might change over time.

4. Dependence on Terminal Value: Since much of the firm's value comes from the terminal value, slight changes in growth rate or WACC can drastically alter the overall valuation.

5. Simplified Capital Structure: The model assumes invested capital only includes debt and equity, without considering more complex factors like retained earnings or other financial elements that could affect the total capital invested in the business.

Conclusion:

The EVA model shows that the company is expected to grow consistently in the coming years, from 2024 to 2029. As EVA increases each year, it indicates that the company is generating more returns than its cost of capital (16%). By adding up the future EVA values and the terminal value, the total firm value is estimated to be ₹2,59,537.96, with the equity value coming to ₹2,57,625.96. Based on the outstanding shares, this results in a share price of ₹9,227.19.

RESIDUAL OPERATING INCOME MODEL

One absolute valuation method that may not be so familiar to most, but is widely used by analysts, is the residual income method.

Residual income is the income a company generates after accounting for the cost of capital.

➢ The residual income valuation formula is very similar to a multistage dividend discount model, substituting future dividend payments for future residual earnings.
➢ Residual income models make use of data readily available from a firm's financial statements.
➢ These models look at the economic profitability of a firm rather than just its accounting profitability.

In terms of equity valuation residual income is the income generated by a firm after accounting for the true cost of its capital.

The residual income model attempts to adjust a firm's future earnings estimates to compensate for the equity cost and place a more accurate value on a firm. Although the return to equity holders is not a legal requirement, like the return to bondholders, to attract investors firms must compensate them for the investment risk exposure.

1) Firstly, we forecast sales and operating incoming for five years using the expected growth rate.
2) We then calculate Net Financial Obligations (NFO) and Net Operating Assets (NOA).
3) We calculate the Residual Operating Income (ReOI) by deducting the product of the cost of capital and NOA from Operating Income.
4) Then we calculate the terminal value, after which we find the Present Value of both ReOI and Terminal value.
5) The value of the firm is calculated by taking the sum of NOA, PVReOI, and PVTV.
6) We calculate the value of Equity by subtracting Debt (NFO) from the value of the firm.
7) Finally, we divide the equity value by no of equity shares outstanding to arrive at the value per share.
8) When comparing this value with the current stock price, we see that the stock is undervalued.

Year	2024	2025	2026	2027	2028	2029
INCOME STATEMENT						
Sales	44,870.43	48,518.40	52,462.94	56,728.18	61,340.18	66,327.14
Operating income	8,764.68	10,386.67	12,308.83	14,586.71	17,286.12	20,485.09
Net Income	7,708.24	9,364.40	10,887.63	12,689.58	14,820.43	17,339.54
NOPAT = EBIT(1-T)	7531.656387	9375.457893	10899.68593	12702.69938	14834.68579	17355.00621
BALANCE SHEET						
Net Operating Assets	4,452	9427.78	10,207.73	11049.10	11956.88	12936.48
Net Financial Obligations	748					
Equity	3,704					
REOI	8,035.88	8,843.36	10,637.84	12,777.98	15,328.80	18,367.41
PV of REOI	40926.47185					
Terminal value						395698.0344
PV of Terminal value	188396.9843					
Value of the firm	233,776					
Value of Equity	233,028					
Number of Equity Shares	27.92031295					
Value per share (in crores)	8346.17					
Market price per share (in Rs)	10853					

Value of the firm = (NOA + PV of REOI + PV of CV)

Residual Operating Income (ReOI) = Operating income - (Cost of Capital*NOA)

Net Operating Assets = Operating Assets - Operating Liabilities

Net Financial Obligations = Financial Liabilities - Financial Assets

PV of Residual Income = Residual Income/((1 + Re)^t)

Firm Value = Equity Capital + sum_{t=1}^{n} Residual Income/(1 + r)^t

Terminal Value = {Residual Income in Final Year} \(1 + g)}{r - g}

Conclusion and Recommendations

Based on the valuation models:

- **Overvaluation Indicated:** Most models, including APV, WACC, and Capital Cash Flow, suggest that Bajaj Auto's current share price of Rs. 11,374 exceeds its intrinsic value. The high valuation in these models indicates that the stock might be trading at a premium compared to its estimated value.

- **Mixed Insights:** The Residual Income Model suggests a higher value per share, indicating the stock could be less overvalued than other models suggest. Conversely, the CFROI and DDM models provide lower valuations, reinforcing concerns of overvaluation.

- **Recommendation:** Given the majority of models suggest an overvaluation, investors should carefully consider these insights before making investment decisions. It may be prudent to monitor market conditions, company performance, and model assumptions closely, and to consider the potential risks of investing in a stock trading above its estimated intrinsic value.

Contributions

Aishwarya - CCF Method

Ananyaa - EVA Model

Chaitanya V L V S - Forecasting of balance sheet and p&l, FCFF, beta calculation, WACC calculation, DDM, CFROI

Chandra Vikas – AVP Method

Chandra Moulika – WACC Method

Chitralekha – Residual income method

Deepti – Relative valuation method