**Varun Khadayate | Simran Kumari | Kartik Padave**

**A016 | A018 | A022**

**Professor Jasmin Bid**

**Financial Management**

**20 October 2022**

Mahindra & Mahindra

# 

[**About the Company**](#_94fhw7mfbga2) **2**

[**Balance Sheet**](#_f2rv4zqt2wk9) **3**

[**Profit and Loss Statements**](#_igjri2wscpzn) **3**

[**Debt Equity Ratio**](#_jrnm17to6t7e) **4**

[**Historical Opening Price data for Mahindra and Mahindra**](#_bqzpanu9xvx5) **4**

[**Dividend Data M&M**](#_ijjq8ami9p5d) **4**

[**HPR Calculation for M&M**](#_pkfr3u7lt5k8) **5**

[**Historical Opening Price Data Nifty50**](#_knz7x0txh6oh) **6**

[**HPR Calculation for Nifty50**](#_2gvc2fkt3fzi) **6**

[**Calculation of beta using Historical Data**](#_7vml2nqemi07) **7**

[**Debt and Interest Calculation**](#_pg0w8vby8uoo) **8**

[**Cost of Equity Calculation**](#_mkp1sot5jr0z) **9**

[**Cost of Debt Calculation**](#_1ad1q548gynm) **9**

[**WACC Calculation**](#_qwe1m3rbtspu) **10**

[**Leverage Calculation**](#_8jd9hs1kz3d1) **11**

[**Link to Excel Sheet :**](#_vn2czboak9w7) **12**

[**References:**](#_666dw6xsdyeu) **12**

# About the Company

Mahindra & Mahindra Ltd is one of the most diversified automobile companies in India with presence across 2-wheelers, 3-wheelers, PVs, CVs, tractors & earthmovers. It was incorporated in 1945 by Ghulam Mohammad and two Mahindra Brothers (KC & JC Mahindra) and was later renamed as Mahindra & Mahindra in 1948. The Company’s segments include Automotive and Farm Equipment. The Automotive segment comprises the sale of automobiles, spares, mobility solutions, construction equipment and related services. The Farm Equipment segment comprises the sale of tractors, implements, spares and related services It also comprises Powerol and spares business unit. The Company offers a range of products and solutions, including sport utility vehicles (SUVs), pickups, commercial vehicles and tractors to electric vehicles, two-wheelers, and construction equipment. Its industries include aerospace, aftermarket, agribusiness, automotive, boats, clean energy, consulting, construction equipment, defense, farm equipment, hospitality, information technology, insurance broking, logistics, power backup, retail, steel, real estate and infrastructure, and vehicle and equipment finance.



# Balance Sheet

| Balance Sheet for Mahindra and Mahindra from FY 2017-2022 | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  | Mar 2017 | Mar 2018 | Mar 2019 | Mar 2020 | Mar 2021 | Mar 2022 |
| Share Capital + | 297 | 595 | 596 | 597 | 597 | 598 |
| Reserves | 26,489 | 29,699 | 33,613 | 33,871 | 34,354 | 38,363 |
| Borrowings + | 2,851 | 2,958 | 2,571 | 3,027 | 7,786 | 6,734 |
| Other Liabilities + | 10,332 | 14,195 | 15,916 | 13,007 | 18,827 | 21,436 |
| **Total Liabilities** | **39,968** | **47,447** | **52,697** | **50,502** | **61,564** | **67,130** |
| Fixed Assets + | 7,771 | 7,859 | 10,082 | 10,395 | 12,011 | 14,549 |
| CWIP | 2,040 | 3,129 | 2,420 | 4,009 | 6,125 | 5,018 |
| Investments | 17,908 | 20,583 | 22,016 | 19,938 | 21,783 | 25,110 |
| Other Assets + | 12,248 | 15,876 | 18,179 | 16,160 | 21,645 | 22,454 |
| **Total Assets** | **39,968** | **47,447** | **52,697** | **50,502** | **61,564** | **67,130** |

# Profit and Loss Statements

| Profit and Loss Statement for Mahindra and Mahindra from FY 2017-2022 | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  | Mar 2017 | Mar 2018 | Mar 2019 | Mar 2020 | Mar 2021 | Mar 2022 |
| Sales + | 44054 | 48686 | 53614 | 45488 | 44630 | 57446 |
| Expenses + | 39539 | 42462 | 46974 | 39690 | 37672 | 50404 |
| **Operating Profit** | **4515** | **6224** | **6640** | **5798** | **6957** | **7042** |
| OPM % | 0.1 | 0.13 | 0.12 | 0.13 | 0.16 | 0.12 |
| Other Income + | 1894 | 1470 | 1659 | -346 | -1888 | 1867 |
| Interest | 160 | 112 | 113 | 113 | 396 | 223 |
| Depreciation | 1526 | 1479 | 1860 | 2223 | 2370 | 2451 |
| **Profit before tax** | **4723** | **6102** | **6325** | **3116** | **2303** | **6235** |
| Tax % | 0.23 | 0.29 | 0.24 | 0.57 | 0.57 | 0.21 |
| **Net Profit** | **3643** | **4356** | **4796** | **1331** | **984** | **4935** |
| EPS in Rs | 29.33 | 35.04 | 38.58 | 10.7 | 7.92 | 39.7 |
| Dividend Payout % | 0.21 | 0.2 | 0.21 | 0.21 | 1.06 | 0.28 |

# Debt Equity Ratio

| Debt Equity Ratio from 2017-2022 | | | | |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
| 1.52 | 1.772 | 1.996 | 1.875 | 1.584 |
|  |  |  |  |  |
|  |  |  |  |  |
| Link :<https://ycharts.com/companies/MAHMF/debt_equity_ratio> | | | | |

# Historical Opening Price data for Mahindra and Mahindra

| Mahindra and Mahindra Historical Data | | |
| --- | --- | --- |
|  |  |  |
| Year | Opening Price (Rs.) | Dividend (Rs.) |
| April 2017 | 592.5 | 13 |
| April 2018 | 752 | 7.5 |
| April 2019 | 805.1 | 8.5 |
| April 2020 | 534.4 | 2.35 |
| April 2021 | 726 | 8.75 |
| April 2022 | 843.5 | 11.55 |
|  |  |  |
|  |  |  |
| <https://www.moneycontrol.com/stocks/hist_stock_result.php?ex=&sc_id=MM&mycomp=Mahindra%20and%20Mahindra> | | |

# Dividend Data M&M

| Dividend for Mahindra and Mahindra |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Announcement Date | Ex-Date | Dividend Type | Dividend (%) | Dividend (Rs) |
| 30-05-2017 | 13-07- 2017 | Final | 260 | 13 |
| 29-05-2018 | 12-07- 2018 | Final | 150 | 7.5 |
| 29-05-2019 | 18-07- 2019 | Final | 170 | 8.5 |
| 12-06-2020 | 16-07- 2020 | Final | 47 | 2.35 |
| 28-05-2021 | 15-07- 2021 | Final | 175 | 8.75 |
| 30-05-2022 | 14-07- 2022 | Final | 231 | 11.55 |
|  |  |  |  |  |
|  |  |  |  |  |
| <https://www.moneycontrol.com/company-facts/mahindramahindra/dividends/MM> | | | | |

# HPR Calculation for M&M

| Holding Period Return Calcualation for Mahindra and Mahindra |  |
| --- | --- |
|  |  |
| Time Period | HPR |
| April 2017 - April 2018 | 29.11 |
| April 2018 - April 2019 | 8.06 |
| April 2019 - April 2020 | -32.57 |
| April 2020 - April 2021 | 36.29 |
| April 2021 - April 2022 | 17.39 |
|  |  |
|  |  |
|  |  |
| HPR = ((Dividend + (Ending Price - Opening Price))/Opening Price)\*100 |  |

# Historical Opening Price Data Nifty50

| NIFTY HISTORICAL DATA |  |
| --- | --- |
|  |  |
| Year | Opening Price (Rs.) |
| April 2017 | 9,220.60 |
| April 2018 | 10,151.65 |
| April 2019 | 11,665.20 |
| April 2020 | 8,584.10 |
| April 2021 | 14,798.40 |
| April 2022 | 17,436.90 |

# HPR Calculation for Nifty50

| Holding Period Return Calcualation for Mahindra and Mahindra |  |
| --- | --- |
|  |  |
| Time Period | HPR |
| April 2017 - April 2018 | 10.10 |
| April 2017 - April 2019 | 14.91 |
| April 2017 - April 2020 | -26.41 |
| April 2017 - April 2021 | 72.39 |
| April 2017 - April 2022 | 17.83 |
|  |  |
|  |  |
|  |  |
| HPR = ((Dividend + (Ending Price - Opening Price))/Opening Price)\*100 |  |
|  |  |
|  |  |
|  |  |
| ***Since there is no dividend we will keep it as 0*** |  |

# Calculation of beta using Historical Data

| Calculation of beta using Historical Data |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Year | Rjt | Rmt | Rjt-Rj(bar) | Rmt-Rm(bar) | (Rjt-Rj(bar))(Rmt-Rm(bar)) | (Rmt-Rm(bar)^2 |
| April 2017 - April 2018 | 29.11 | 10.10 | 17.46 | -0.31 | -5.36 | 0.094 |
| April 2017 - April 2019 | 8.06 | 14.91 | -3.60 | -21.36 | 76.88 | 456.354 |
| April 2017 - April 2020 | -32.57 | -26.41 | -44.22 | -61.99 | 2741.43 | 3842.555 |
| April 2017 - April 2021 | 36.29 | 72.39 | 24.64 | 6.87 | 169.30 | 47.225 |
| April 2017 - April 2022 | 17.39 | 17.83 | 5.73 | -12.03 | -68.97 | 144.749 |
|  |  |  |  |  |  |  |
| Summation of Rjt | 58.29 |  | Cov(Rjt,Rmt) | 728.3222147 |  |  |
| Rj(bar) | 11.66 |  |  |  |  |  |
|  |  |  | sigma^2 | 1122.74452 |  |  |
| Summation of Rmt | 88.82 |  |  |  |  |  |
| Rm(bar) | 17.76 |  | Beta = Cov(Rjt,Rmt)/sigma^2 | 0.64869808 |  |  |
|  |  |  |  |  |  |  |
| Summation of (Rjt-Rj(bar))(Rmt-Rm(bar)) | 2913.29 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Summation of (Rmt-Rm(bar)^2 | 4490.978 |  |  |  |  |  |

# Debt and Interest Calculation

| Debt calcuation which can be calcuated as borrowings from balance sheet |  |
| --- | --- |
|  |  |
| Year | Debt |
| April 2017 - April 2018 | 2,958 |
| April 2017 - April 2019 | 2,571 |
| April 2017 - April 2020 | 3,027 |
| April 2017 - April 2021 | 7,786 |
| April 2017 - April 2022 | 6,734 |
|  |  |
| Interest calcuation which can be calcuated as interest from profit and loss statememts |  |
|  |  |
| Year | Interest |
| April 2017 - April 2018 | 112 |
| April 2017 - April 2019 | 113 |
| April 2017 - April 2020 | 113 |
| April 2017 - April 2021 | 396 |
| April 2017 - April 2022 | 223 |

# Cost of Equity Calculation

| Cost of Equity from 2017-2022 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| 2017-18 | |  | 2018-19 | |  | 2019-20 | |
| Risk Free Rate [Rf] | 7.40% |  | Risk Free Rate [Rf] | 7.40% |  | Risk Free Rate [Rf] | 7.40% |
| Expected return on the market portfolio [E(Rm)] | 3.78% |  | Expected return on the market portfolio [E(Rm)] | 4.47% |  | Expected return on the market portfolio [E(Rm)] | -2.33% |
| Beta [β] | -1.0654 |  | Beta [β] | 0.4573 |  | Beta [β] | 2.8068 |
| Cost of Equity [Re] | 11.25% |  | Cost of Equity [Re] | 6.06% |  | Cost of Equity [Re] | -19.91% |
|  |  |  |  |  |  |  |  |
| 2020-21 | |  | 2021-22 | |  |  |  |
| Risk Free Rate [Rf] | 7.40% |  | Risk Free Rate [Rf] | 7.40% |  |  |  |
| Expected return on the market portfolio [E(Rm)] | 35.87% |  | Expected return on the market portfolio [E(Rm)] | -2.04% |  |  |  |
| Beta [β] | 3.0529 |  | Beta [β] | 1.2492 |  |  |  |
| Cost of Equity [Re] | 94.32% |  | Cost of Equity [Re] | -4.39% |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Formula = Re = Rf + β[E(Rm) – Rf ] | | | | | | | |
|  |  |  |  |  |  |  |  |
| Link to Calculate Beta :<https://www.buyupside.com/calculators/beta.php> | | | | | | | |

# Cost of Debt Calculation

| Year | Rd |
| --- | --- |
| April 2017 - April 2018 | 2.461 |
| April 2017 - April 2019 | 2.857 |
| April 2017 - April 2020 | 2.426 |
| April 2017 - April 2021 | 3.306 |
| April 2017 - April 2022 | 2.153 |

# WACC Calculation

| WACC from 2017-2022 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| 2017-18 | |  | 2018-19 | |  | 2019-20 | |
| Proportion of equity [We] | 0.6031746032 |  | Proportion of equity [We] | 0.6392496392 |  | Proportion of equity [We] | 0.6662216288 |
| Cost of equity [Re] | 0.112526172 |  | Cost of equity [Re] | 6.06% |  | Cost of equity [Re] | -19.91% |
| Proportion of debt [Wd] | 0.3968253968 |  | Proportion of debt [Wd] | 0.3607503608 |  | Proportion of debt [Wd] | 0.3337783712 |
| Cost of Debt [Rd] | 2.461 |  | Cost of Debt [Rd] | 2.857 |  | Cost of Debt [Rd] | 2.426 |
| Tax Rate [t] | 0.35 |  | Tax Rate [t] | 0.35 |  | Tax Rate [t] | 0.35 |
| WACC | 0.7026862414 |  | WACC | 0.7086321086 |  | WACC | 0.3938207362 |
|  |  |  |  |  |  |  |  |
| 2020-21 | |  | 2021-22 | |  |  |  |
| Proportion of equity [We] | 0.652173913 |  | Proportion of equity [We] | 0.613003096 |  |  |  |
| Cost of equity [Re] | 94.32% |  | Cost of equity [Re] | -4.39% |  |  |  |
| Proportion of debt [Wd] | 0.347826087 |  | Proportion of debt [Wd] | 0.386996904 |  |  |  |
| Cost of Debt [Rd] | 3.306 |  | Cost of Debt [Rd] | 2.153 |  |  |  |
| Tax Rate [t] | 0.35 |  | Tax Rate [t] | 0.35 |  |  |  |
| WACC | 1.36256003 |  | WACC | 0.5145366844 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| WACC = WeRe + WdRd (1 – t ) | | | | | | | |

# 

# Leverage Calculation

| Leverage Calculation from 2017-2022 | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  | 2018 | 2019 | 2020 | 2021 | 2022 |  |
| Revenue | 49,721.91 | 55,302.97 | 47,155.59 | 46,262.29 | 59,521.87 |  |
| VC | 1,036.36 | 1,688.97 | 1,667.81 | 1,221.31 | 2,075.90 |  |
| Contribution | 48,685.55 | 53,614.00 | 45,487.78 | 45,040.98 | 57,445.97 |  |
| FC | 27,541.94 | 27,541.94 | 17,358.96 | 17,267.28 | 23,864.99 |  |
| EBIT | 21,143.61 | 26,072.06 | 28,128.82 | 27,773.70 | 33,580.98 |  |
| Interest | 112.20 | 113.39 | 113.23 | 370.88 | 223.00 |  |
| EBT | 21,031.41 | 25,958.67 | 28,015.59 | 27,402.82 | 33,357.98 |  |
|  |  |  |  |  |  |  |
| DOL | 2.30 | 2.06 | 1.62 | 1.62 | 1.71 |  |
| DFL | 1.01 | 1.00 | 1.00 | 1.01 | 1.01 |  |
| DCL | 2.31 | 2.07 | 1.62 | 1.64 | 1.72 |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| OVERALL |  |  |  |  |  |  |
|  | 2018-2022 |  |  |  |  |  |
| Revenue | 257,964.63 |  |  |  |  |  |
| VC | 7,690.35 |  |  |  |  |  |
| Contribution | 250,274.28 |  |  |  |  |  |
| FC | 113,575.11 |  |  |  |  |  |
| EBIT | 136,699.17 |  |  |  |  |  |
| Interest | 932.70 |  |  |  |  |  |
| EBT | 135,766.47 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| DOL | 9.31 |  |  |  |  |  |
| DFL | 5.03 |  |  |  |  |  |
| DCL | 9.37 |  |  |  |  |  |

# Link to Excel Sheet :

[M&M Calculations](https://docs.google.com/spreadsheets/d/1AydHfOHVHl2B6HoQLrPOlzhNnWR5LT_UlT0dhx_8QQg/edit?usp=sharing)

# References:

1. <https://www.screener.in/company/M&M/consolidated/>
2. <https://groww.in/stocks/mahindra-mahindra-ltd>
3. <https://finbox.com/NSEI:M&MFIN/explorer/degree_of_operating_leverage>
4. <https://finbox.com/BSE:500520/explorer/financial_leverage>
5. <https://www.buyupside.com/calculators/beta.php>
6. <https://ycharts.com/companies/MAHMF/debt_equity_ratio>
7. <https://www.tickertape.in/stocks/mahindra-and-mahindra-MAHM/financials?checklist=basic&period=annual&statement=income&view=normal>
8. <https://www.moneycontrol.com/stocks/hist_stock_result.php?ex=&sc_id=MM&mycomp=Mahindra%20and%20Mahindra>
9. <https://www.moneycontrol.com/company-facts/mahindramahindra/dividends/MM>