

When will Tesla sell more cars than BMW?

'The market is expecting that Tesla car sales will cross BMW by mid-2023'

Last year Tesla sold over 936K cars, this was 87% more than the previous year. Since its start Tesla showed an impressive sales growth (78% CAGR over the last 7 years). And the Q1/Q2 2022 sales (305K/258K cars) implied that this growth is continuing.

Last year BMW sold over 2.5M cars, this was 8% more than the previous year. The volumes of cars sales at BMW are meandering over the years (2.5% CAGR over the last 7 years) and it seems BMW has a steady base but not much growing power.

The question when Tesla will sell more cars than BMW can be answered by multiplying the growth rates of both company and see when the amount cross.

More interesting would be to see what the market seems to expect. A way to do this, is by comparing the Market Capitalizations (MarCap) of both companies and recalculate this to the number of cars.

First let's start to look at the MarCaps of both companies. The MarCap can be calculated by multiplying the number of shares with the current stock price. This would give the following outcomes:

	Tesla	BMW
Outstanding shares	1.034	602
Stock Price (22-7-2022)	\$ 816,73	€ 77,10
MarCap	844.499	46.414
	(in Billion USD)	(in Billion EUR)

Although the Marcap of Tesla is in USD and that of BMW in EUR it is clear to see that the general market expectation is that Tesla will by far outperform BMW. Currently Tesla sells about half the number of cars that BMW is selling but in Marcap Tesla is 18 times bigger. What will this mean in car sales expectations.

Let's first define the meaning of Market Capitalization:

'Market Capitalization is the net present value of all future cash-flows'.

This is easy definition but a sheer impossible calculation as nobody can predict the future. However, with some assumptions we can make a calculated guess.

The formula we use for this calculation is:

$$\sum_{i=0}^n FCF * \frac{(1 + growth)}{1 + e^n}$$

To make the calculations we need two items per company:

- Marcap (has been given in above statement)
- Free cash (and for this calculation we use the free cash as reported over 2021)
 - o Tesla had in 2021 a free cash of 5,015M
 - o BMW had in 2021 a free cash of 6,354M

This would mean a perpetuated calculated growth (based on 8.8% WACC):

For Tesla:

$$844,499 = \sum_{i=0}^{n \rightarrow \infty} 5,015 * \frac{(1 + growth)}{1 + e^{i * 0.088}} \Rightarrow 38,93\%$$

For BMW:

$$46,414 = \sum_{i=0}^{n \rightarrow \infty} 6,354 * \frac{(1 + growth)}{1 + e^{i * 0.088}} \Rightarrow -3,87\%$$

Using these growth figures to extrapolate the yearly cars sales of both companies this gives the following outcome:

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