Project reflections:

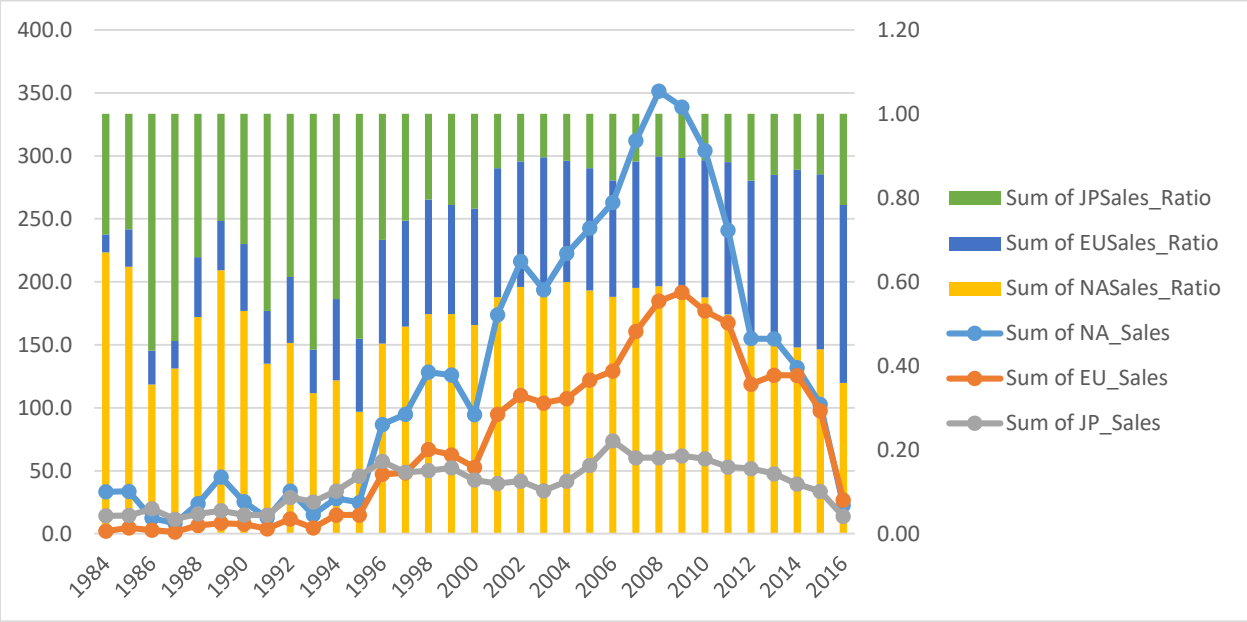
Before I start with answering based the project brief, I would like to state the methodology used

Methodology: We will pick up insights based on exercise 1.8 because they will most closely be able to generate a story to answer the questions of GameCos execs for this exercise assuming the Goal is to create a data driven understanding and methodology of future marketing budget allocations.

We will try to simplify (but not over simplify) the problem to 1 or 2 metrics and then generate and communicate the insights based on that.

Insights picked: We saw in exercise 1.8, that the region level sales (NA,EU,JP) did not behave according to how I expected. In this case, Gameco`s executive board expects region wise sales to remain the same over the years. When we analysed the data in the previous exercises, we saw that was not the case.

The actual sales and their relative proportion for the 3 regions seems to vary significantly over the years possibly telling us that there were reasons other than marketing spend (which we will assume remained the same in terms of proportion since we are assuming sales to be the same over the years). But for the purpose of this exercise, we will assume marketing budget is the only factor causing it since it is the only one we actively control for the scope of this exercise.



This is a combo chart with actual sales on one axis(line chart) and sales proportion on another axis (stacked bar chart)

The regions sales proportion formulas are changed here : example EUSales_ratio=EUSales/(NASales+EUSales+JPSales) because our purpose it to track their relative movement over the years

Steps to arrive here :

First, we did an exploratory data analysis to get a sense of the data and also what needs to be cleaned in the data

We removed the years 2017 to 2020 and NA as well as 1980 to 1983

As stated above, we then created calculated variables for regional sales proportions

we then created a pivot chart for the variables of interest on columns and years on rows with following central tendencies (calculated based on this pivot table)

Measures	NA Sales	EU Sales	JP Sales	NA Sales ratio	EU Sales ratio	JP Sales ratio
Mean	128.9	72.9	38.7	0.5	0.2	0.3
Median	102.8	62.7	41.7	0.5	0.3	0.2
standard deviation	106.3	62.3	17.4	0.1	0.1	0.1

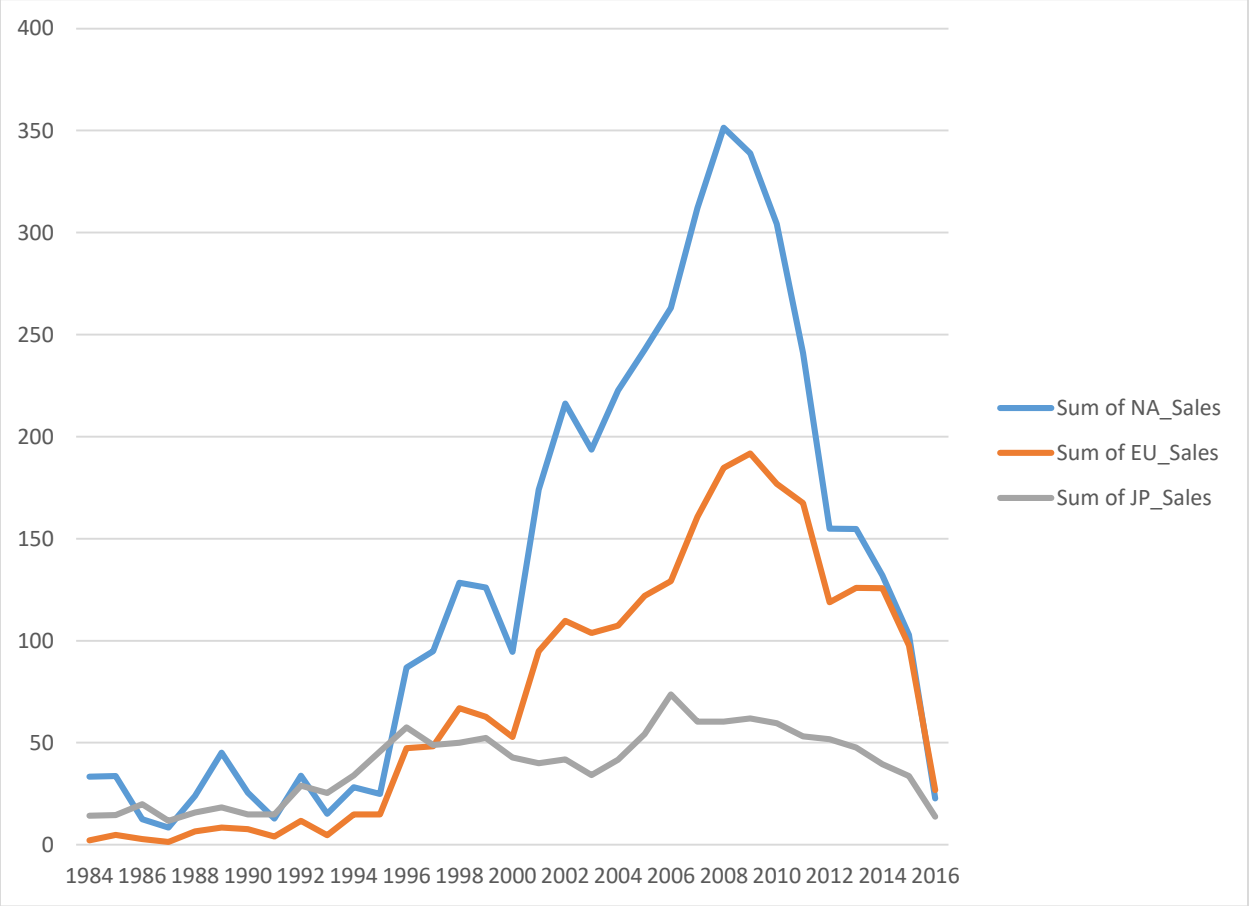
In order to see the development over the years better, we then plotted combo charts (stated above)

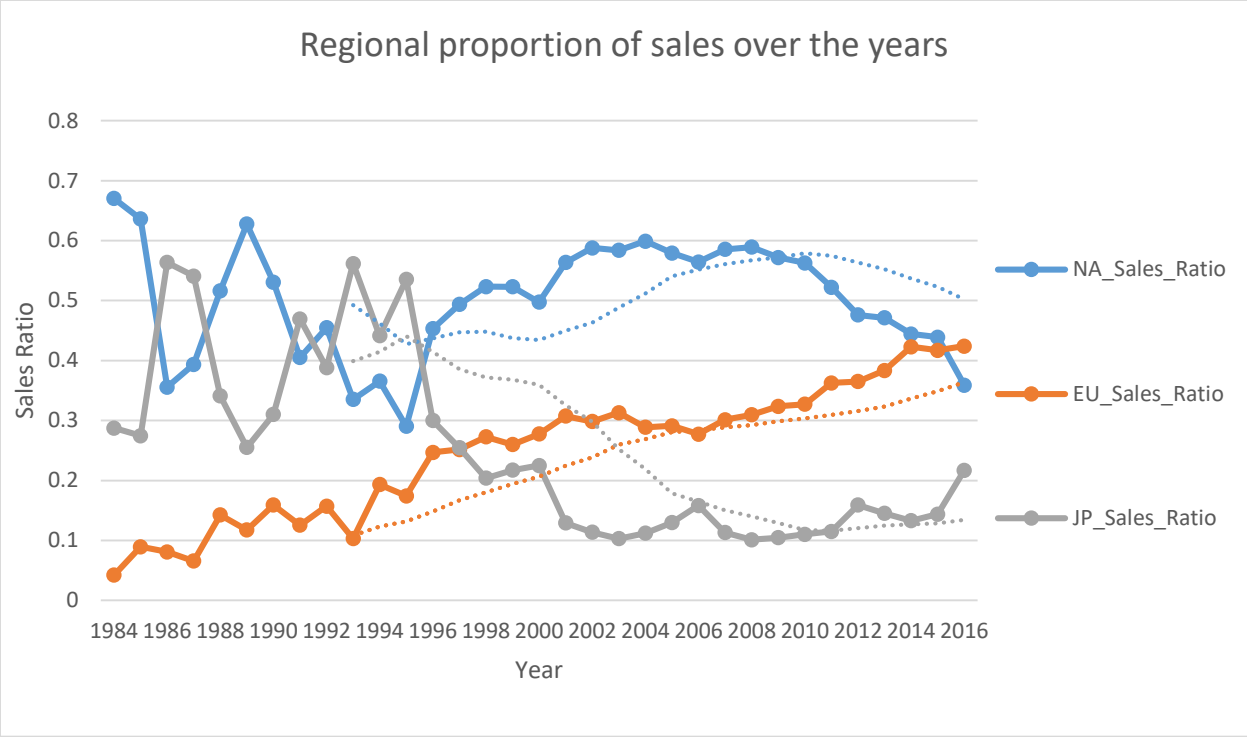
Based on the chart, we realized that in order to talk better about the marketing budget allocations, we need to focus on sales proportions alone since they will be the determinant for marketing budgets.

So in our presentation, we will create 2 charts : 1 line chart with regions level sales and one 1 line chart with region level sales proportions (with trendlines)

Drawing inspiration from stock market moving averages, we are going to set our trendlines to 10 year moving average and this line will represent the average potential ratio for that region.

Meaning, if a proportion is in reality going above the trendline, it is over performing and if it is below, then its underperforming.





In order to present to the executives in terms of recommendations, based on experience we are using line charts since they make it easy to read movements for multiple variables plotted on time