Sales Analysis of Advanced Micro Devices (AMD)

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Abstract

Financial Management is a vital activity in any organisation. It helps in the process of planning, organising, controlling and monitoring financial resources with a view to achieve organisational goals and objectives. Quantitative analysis is the use of mathematical models to analyse data points, with the intent of understanding a condition. This type of analysis is used to predict future outcomes, and is key concept in financial modelling as well as other areas.

The company selected for analysis is Advanced Micro Devices (AMD). AMD was started back on May 1,1969. The company offers a variety of microprocessors and graphics processors along with a variety of APUs and their software. AMD is currently gaining control over the current processor market. The present research describes the sales trend of AMD in the past years and a prediction model for its future sales. This analysis is important because it predicts the future value of a rapidly developing company which might own the microprocessor industry within 5 years with its current progress rate. The study ultimately delivers a concise report of AMD's future sales.

Key words: Advanced Micro Devices (AMD), trend analysis, secular trend, cyclical trend, seasonal trend, erratic trend, quantitative Analysis

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Introduction:

In our day-today world, data is becoming more and more important. Any kind of data is starting to have some kind of value. For an entrepreneur, if he /she can find a way to improve his/her income, then the data is of paramount importance. Financial Management is vital activity in any organisation. It is the process of planning, organising, controlling and monitoring financial resources with a view to achieve organisational goals and Objectives. Statistics helps with handling of such mass data. Time series analysis in statistics which deals with the chronological arrangement and analysis of data is what we are here to talk about. "A time series is set of statistical observations arranged in chronological order" according to Mooris Hamburg. Time series has four components, namely
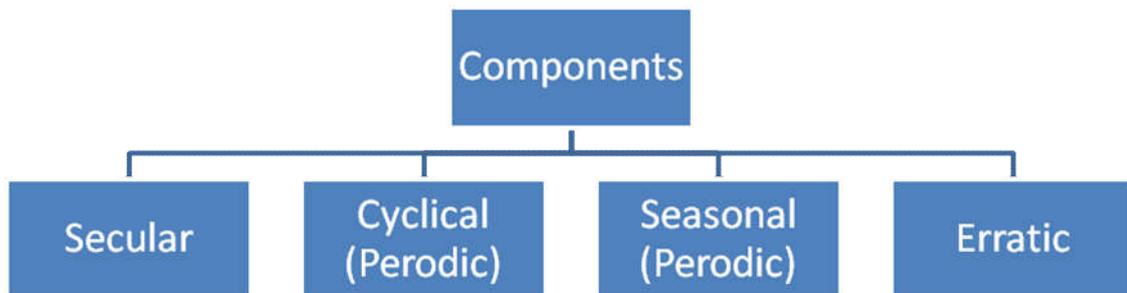
In time series analysis the four components of the time series are assumed to have a multiplicative relationship.

$$Y = T \times S \times C \times I$$

Where Y denotes the result of the four components, T = Trend, S = Seasonal Components, C = Cyclical Components, I = Irregular Components.

In the multiplicative model the four components are caused due to different components but not necessarily independent and they can affect one another.

Another approach in time series is to treat each observation as the sum of the four time-series components.

$$Y = T + S + C + I$$

Importance of Time Series:

In today's world, one of the important thing for mankind is data. Any form of data is now important for man. Many organisations across the world are searching for data to complete their research and hypothesis. And there are some organisations across the globe whose job is to collect the data and store it for their reference or for others reference (or even for sale). What that matters is that data is becoming more and more valuable by the day. And all this data accumulates to form big data which is unorganised. One of the methods of arranging this data is by means of time series, that is arranging data with reference to time or chronological arrangement of data.

Time series in today's world is getting digitalized all the collected data is stored and manipulated using computers and software among this, we have AMD which in today's world is a developing microprocessor company. This company is a good subject to apply time series technique and study about its components. As of the data set, we have collected the data from 2013 to 2017(2018 report is yet to arrive). By applying time series, we can find or get an average idea of how AMD's sales are expected in the forth coming years, how the sales vary within a year, the business cycle of AMD (what phase AMD is currently in), what are the possible erratic factors that might affect AMD. All the above types of analysis along is collectively called as Time series analysis. But time series analysis along with a few others numerical analytical methods is collectively known as Quantitative analysis. Quantitative analysis is the use of mathematical models to analyse data points, with the intent of understanding a condition. This type of analysis is used to predict future outcomes, and is key concept in financial modelling as well as other areas. In a manner our study can be called as Time Series Analysis or Quantitative Analysis. Doing Quantitative analysis helps forecasting, estimation and evaluation of a particular quantity over a period of time. Forecasting mainly includes trend analysis while estimation can be associated with correlation and regression and finally evaluation can be done using index numbers. Index numbers are statistical tools mostly used in economics which give a ratio or a numbers which relates the value of a particular quantity in the past with its value at present.

Quantitative analysis of AMD

AMD was started back in 1/5/1969 which is roughly 50 years ago. They have been all alive in the market and haven't been in much of notice until recently. In 2017 AMD came up with their revolutionary Zen architecture which started making an impact in the market. They took the market on by force and rattled intel which held the market for roughly 50 years. Their Zen architecture was able to overcome the drawbacks they had faced in their previous models.

AMD 2017 Financial Momentum

REVENUE

$5.3B

$4.3B

$4.08B

$1.0B INCREASE

2015   2016   2017
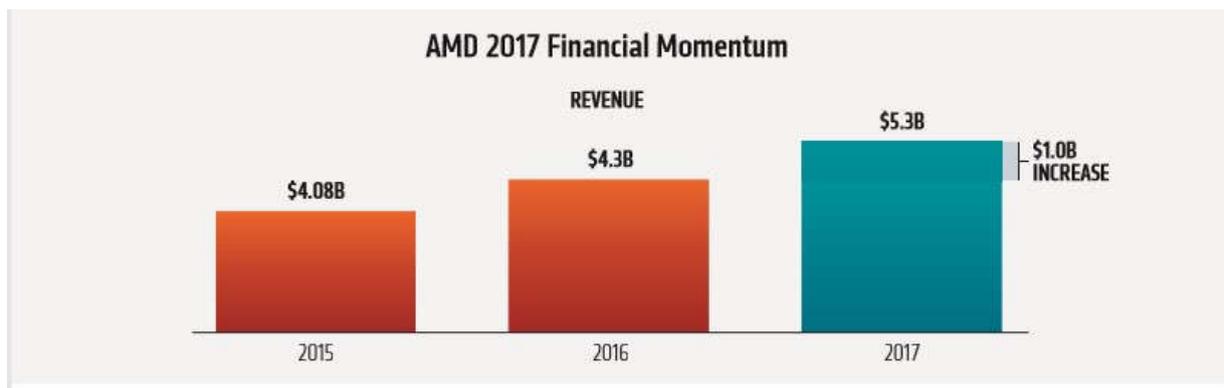
Secular Trend:

The general tendency of the time series is to increase or decrease or stagnate during a long period of time is called trend or secular trend. Improvement in technologies, new designs, are various factors that influence upward trend while hardware issues or bugs in software or even poor customer service are factors that influence downward trend. Thus time series shows fluctuations in upward or downward direction in the long run.

SALES TREND

Cyclical Variation:

The term cyclical refers the recurrent variation in the time series, that extends over long period of time usually for two or more years. Most of the time series relating to economic and business show some kind of cyclical variation. A business cycle consists of recurrence of the up and down movement of business activity. It is a four-phased cycle namely
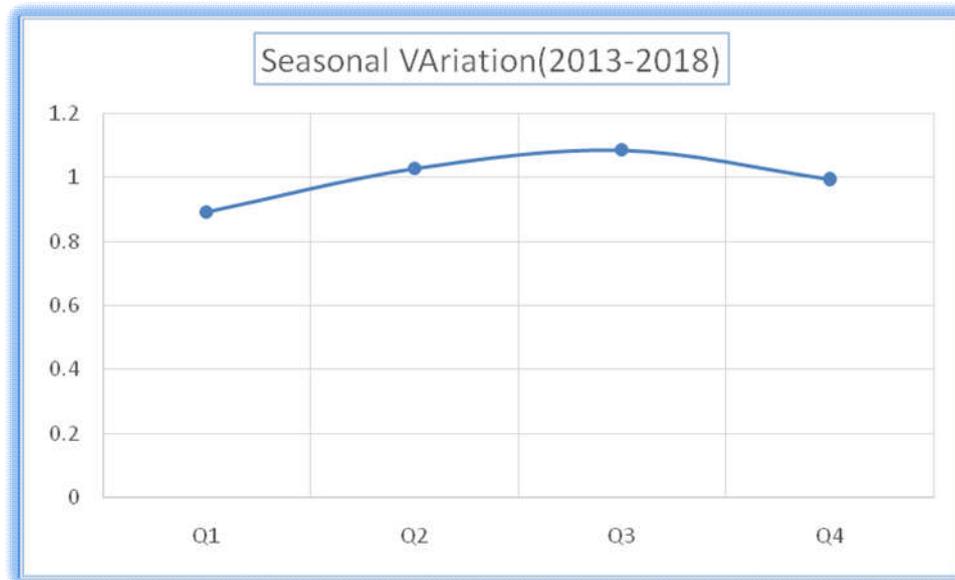
1. Prosperity
2. Decline
3. Depression
4. Recovery
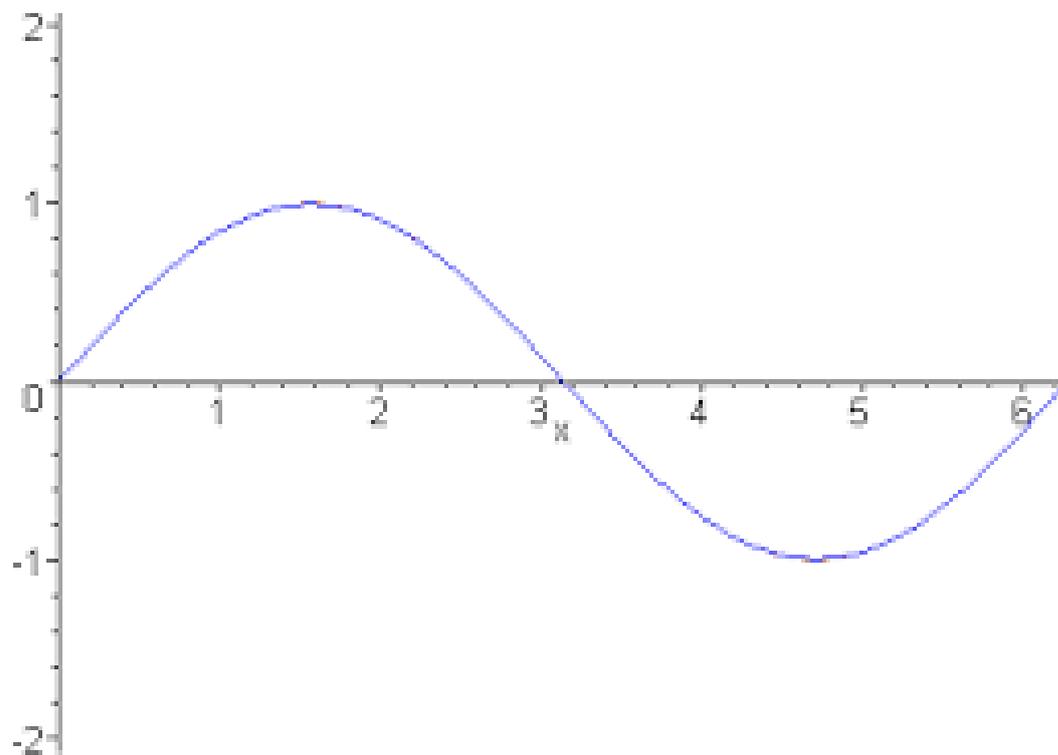
Seasonal Variation:

The variation that occurs within a year during a particular season because of the place is known as seasonal variation. The factors that causes seasonal variation are

i) Climate and weather

ii) Customs and traditional habits

Seasonal VAriation(2013-2018)

Erratic / Irregular variation:

Irregular variations are also erratic. These are caused due to unexpected or uncontrollable factors like war, famine, drought etcetera. This is a short term effect but can drastically affect the other components of time series. There is no fixed or definite statistical tool which can predict or foresee theerratic factor or isolate it. Therefore, the residual that remains after computing all the other time series components is usually taken as the irregular variation.

Objectives of Study

1. To study about the sales trend of Advanced Micro Devices considering the data from the past 6 years.

2. To interpret about the seasonal component involved in AMD's sales trend

3. To study about the seasonal variation in the trend of the sales of AMD

4. To find the erratic factor that might affect AMD

Methodology

1. **Research design**

   The study has used conceptual research design technique to describe about the case.

2. **Sample size**

The data set chosen is from the past 6 years.

3. **Data Collection**

    Researchers collected data from AMD's official press release data.

4. **Tool used for Analysis**

    1. Researchershave used graphical method to plot the trend graph
    2. Researchers have used the method of simple average to calculate the seasonal indices
    3. Researchers plot the quarterly sales of AMD to get the sales plot to interpret the cyclical component
    4. Researchers determine the erratic factor by studying the various factors that might affect AMD and come to a conclusion

Limitations of Our Study

Most of our tools for determining the time series components are independent in nature which may not be true in all cases. The forecasting ability of certain tools are also relatively less compared the other tools.

Analysis and Findings

1. **Trend Analysis**

    As for the trend, the nature of trend seems downward because they had quite a fall during 2015-2016 which was essentially due to the fact that they were focused on their R&D department rather than their sales department. But considering the data of the past two years, their sales have got considerably higher when compared to their previous years. So if we make a trend line from the last two years, we can see that it has a rising trend.

2. **Cyclical Analysis**

    From the data collected by my team, it is evident that before 2015, AMD had some good sales. This was their period of prosperity, as mentioned above, 2015 and 2016 marked the decline and the depression period of AMD in the cycle of Business. The present data shows that AMD's sales have improved considerably and are going towards prosperity. Thus within the past 6 years of time, AMD had gone through a complete business cycle to come to their current state.

3. **Seasonal Analysis**

Comparing the seasonal variation factors for AMD, they show peak sales during the third quarter of every year which is around September and their sales goes to the bottom by the first quarter which is around January. This shows that the good time to buy a product at AMD is during September when he has peak sales or during January when they make a stock clearance sale.

4. **Erratic variation**

The possible erratic or irregularity that AMD might face now is Intel's Sunny Cove processor a 10nm processor series to rival AMD's Ryzen 3000 series which is a 7nm series processor. This a major threat to AMD because Intel still owns the market with the majority of shares and has a quite established brand name thanAMD and people usually prefer the men in blue rather than the men in red. Likewise, when it comes to graphics cards the people prefer NVIIDIA over AMD this is the same as above as NVIDIA mostly has the brand name and AMD's Vega VII is the rival for NVIDIA's RTX 2080Ti.

Conclusion:

Our overall view about AMD is things are looking brighter side up and the men in red are giving a tough completion to the men in blue and green because they give better performance at a lower cost compared to Intel or NVIDIA.