Amazon VS Alibaba (Performance Comparison using Dashboard)

Course: Decision Support Systems
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Abstract

Alibaba Holding Group Limited ('Alibaba') and Amazon.com Incorporated ('Amazon') are two of the largest e-commerce heavyweights in the world. The two companies, comparable in their meteoric rises to the top of the industry, their sheer power, and their game-changing operations, are crucially different in certain aspects. The two companies are into the online commerce business. In this report, we show comparison dashboards for two leading e-commerce giants, Amazon and Alibaba.

Contents

1 Introduction

1.1 Alibaba

Jack Ma serves as Alibaba's executive chairman and former CEO. The company started with 18 employees and grew rapidly in its first five years, securing millions of dollars in domestic and American sponsorship money. In 2005, Alibaba partnered with Yahoo and took over Yahoo's operations in China. Throughout this decade, Alibaba opened several different technological platforms including TaoBao Mall, a domestic marketplace, and Alimama, an online marketing service. In 2007, the company completed its IPO in the HKSE, becoming publicly traded in Hong Kong. Seven years later, it became publicly traded on the NYSE and became the largest IPO to have ever been opened in the NYSE.

Some data:

- Established in 1999.

- Established the company's headquarters in Hangzhou, China.

- 50,092 employees around the world.

- Offices in Australia, China, France, Germany, Hong Kong, India, Italy, South Korea, Taiwan, Turkey, Russia, Singapore, the United Arab Emirates, the United Kingdom, and the United States.

1.2 Amazon

Jeff Bezos serves as Amazon's CEO. What started as an online bookstore garnered high demand and quickly diversified into an online mall selling an array of items including DVDs, clothing, and electronics. From the start, Bezos was efficient and demanding, going so far as to trademark the domain name 'relentless.com'. He instills in his employees a 'regret minimisation framework' mindset. In 1997, Amazon completed its IPO and became the first internet company to secure 1 million users. During the following year, it went about acquiring companies in the United Kingdom and Germany. In 2001, the company reported its first net profit. Whilst Alibaba quickly expanded into several different consumer-to-consumer, consumer-to-business, and business-to-business operations, Amazon instead focused on diversifying

its retail product base in its early years.

Some data:

- Established in 1994.

- Established the company's headquarters in Seattle, Washington (USA).

- 351,000 employees around the world.

- Offices in Australia, Belgium, Brazil, China, Costa Rica, Egypt, Finland, France, Germany, Hong Kong, India, Israel, Ireland, Japan, Luxembourg, Mexico, Morocco, the Netherlands, New Zealand, Poland, Singapore, Slovakia, South Korea, Spain, Taiwan, Turkey, and Romania.

2 Differences Between Alibaba and Amazon

The main difference between Alibaba and Amazon is the audience – while Amazon serves consumers, Alibaba serves businesses. Amazon does have a B2B marketplace called Amazon Business, but it's mostly known for its consumer offerings.

2.1 Alibaba

The driving force behind Alibaba is its highly diversified service base. Ma's empire was built upon innovation and the company constantly ensures the diversification of their revenue streams to prevent over-dependence on its core e-commerce services. Nonetheless, 87% of Alibaba's revenue stream still derives from the traditional e-commerce platforms.

E-Commerce

- Alibaba.com: The original e-commerce platform launched in 1999, this business-to-business platform connects foreign businesses and investors with Chinese manufacturers.

- TaoBao: Launched in 2003, TaoBao is a consumer-to-consumer eBay-like marketplace. The site has enjoyed high demand. TaoBao was

given its own domain Tmall.com, a business-to-consumer site on which Western brands began establishing themselves.

- Aliexpress: A business-to-consumer platform aimed at connecting small businesses with overseas customers and focuses on small quantity transactions.

Social Media

- Laiwang: A social media and messaging app, Laiwang was set up to counter WeChat, a widely used messaging app in China operated by Alibaba rival and internet giant Tencent. Alibaba has stopped using WeChat.

- Dingtalk: A social media and messaging app targeted towards businesses.

- Weibo: Alibaba has a significant stake in the popular microblogging site.

Cloud Computing

- Aliyun (Alibaba Cloud): Alibaba cloud computing service which competes with Amazon Web Services. Holds the 4th largest market share (2.6%) in the cloud computing industry.

Other

- Alipay: Electronic payment system.

- Alimama: An ad exchange platform.

- Alibaba Music Group: Various other subsidiaries and services.

2.2 Amazon

Whilst Alibaba's focus was on improving the e-commerce experience for businesses and diversifying its services, Amazon focused on the consumer experience and improving the sophistication of its base e-commerce platforms. Amazon Web Services (AWS) is another important revenue source and significant service. Amazon's approach to providing its services can be captured in a quote from CEO Bezos; 'Our customers are loyal to us right up until the second somebody offers them a better service'.

E-Commerce

- Amazon: The original e-commerce platform launched in 1994; the site is both business-to-consumer and consumer-to-consumer.

- Amazon Prime: Video services with a focus on customer experience.

Cloud Computing

- Amazon Web Services (AWS): Launched in 2002, this cloud computing service serves businesses and individuals. Has recently been expanding into the Asia Pacific region. Holds the largest market share (30.3%) in the cloud computing industry. Predicted to have an independent revenue of $13 billion in 2017.

Other

- Amazon Wireless: Mobile and internet service provider.

- Consumer electronics: e.g. Kindle reader.

- Amazon has invested research and development teams in this sector.

3   Literature Review

To provide a comprehensive understanding of Amazon and Alibaba, here are some academic and industry references that cover various aspects of their business strategies, market positioning, and operational efficiencies:

1. *"Amazon.com Inc."* Harvard Business School Case Study - This case study provides a detailed analysis of Amazon's business model, growth strategies, and challenges. It offers insights into how Amazon has evolved over the years and its strategic decisions.

2. *"Alibaba's Business Model and Its Success Factors"* - This paper analyzes Alibaba's business model and the factors contributing to its success, including its ecosystem approach, platform strategy, and the role of technology.

3. *"Amazon vs. Alibaba: The Battle for Global E-commerce Supremacy"* - McKinsey & Company - This report provides an in-depth analysis of the competitive landscape between Amazon and Alibaba, focusing on their market strategies and future prospects.

These academic references and industry reports provide a robust foundation for understanding the competitive dynamics between Amazon and Alibaba.

Creating an effective dashboard involves various best practices and principles to ensure it provides actionable insights and supports decision-making.

1. **Stephen Few**: Few is a recognized expert in the field of data visualization and dashboard design. His books provide comprehensive guidance on designing effective dashboards:
   Few, S. (2006). *Information Dashboard Design: The Effective Visual Communication of Data.* O'Reilly Media.
   Few, S. (2013). *Information Dashboard Design: Displaying Data for At-a-Glance Monitoring (2nd ed.).* Analytics Press.

2. **Wayne Eckerson**: Eckerson's works focus on performance management and the use of dashboards in business intelligence.

3. **Cole Nussbaumer Knaflic**: Knaflic's book provides a detailed approach to storytelling with data, which is essential for effective dashboard design.

4. **Edward Tufte**: Tufte's seminal works on data visualization principles provide foundational knowledge that can be applied to dashboard design.

5. **Data Visualization Experts**: Resources from experts in the field that cover principles and best practices for creating effective visualizations and dashboards.

6. **Dashboard Design Best Practices**: Practical guides and articles that offer actionable tips and techniques for designing dashboards.

4 Methodology

4.1 Data Collection

Dataset for this project has been taken from open sources:

Financial Reports: Quarterly reports from the investor relations sections of Amazon and Alibaba.

Financial Data

- Quarterly Revenue
- Gross Profit
- Operating Expenses
- Revenue Breakdown
- EBITDA

Usually, financial health refers to the overall well-being of a company's financial position. It takes into account various aspects, such as the company's profitability, liquidity, debt levels, and cash flow. By evaluating these factors, you can get a comprehensive picture of the company's financial strength and stability. Comparison between Amazon and Alibaba is done on the basis of financial figures for the period 2014-2023 such as quarterly revenue, gross profit, operating income, and EBITDA.

4.2 Data Preprocessing

Data preprocessing is a crucial step in ensuring that the data used for creating dashboards is accurate, consistent, and ready for analysis. This process consists of the following steps: data cleaning, data transformation, integration, and data validation.

Data Cleaning

The data cleaning process starts by checking and removing duplicates to ensure there are no duplicate records in our dataset. The next step is to impute missing values using mean, median, or mode. In the collected dataset for dashboards, there were no cases with missing values. Identifying and correcting typographical errors or inconsistencies in the data was our third step, and all basic cleaning and preprocessing tasks have been executed in Excel.

Data Transformation

As we extracted the data for Amazon from 2009 onwards but for Alibaba, the availability of data was from 2014, so to be on the same scale and to standardize the data, we truncated the additional records for Amazon between 2009 and 2014.

Data Integration

Financial data from different tables with revenue, operating income, gross profit, and EBITDA indicators have been combined into a single dataset while keeping a consistent format across datasets, in terms of date formats

and values.

Data Validation

This step involves checking the accuracy and quality of data before processing it. Key aspects of data validation of our dataset included presence check – no missing values in required fields, no duplicated data, and ensuring the data is in the correct format. Figures and values have been checked for consistency to ensure that our data is accurate and meaningful. By performing data validation, we minimize possible errors and can maintain high-quality data for decision-making processes.

4.3   Dashboard Creation

Creating dashboards for comparing Amazon and Alibaba involved several steps, from selecting the right tools to designing effective visualizations.

Steps to creating dashboards started from determining our objectives, which allow us to perform a comprehensive comparison of Amazon and Alibaba based on their financial performance and key operational metrics over multiple periods. Excel has been chosen as the tool to build dashboards; all previously cleaned data has been uploaded to it.

The next step is dashboard layout and creating visualizations as shown in *figure 1*. The dashboard's layout has several sections:

- **Head Section**: This consists of the title indicating the dashboard's purpose and the logos of two companies (Amazon vs. Alibaba). Filters and a navigation bar allow dropdowns for filtering data (e.g., time period, company's name).

- **Main KPIs Section**: This displays the top 4 metrics and is placed in a row at the top (Revenue, Gross Profit, EBITDA, Net Income).

- **Charts and Visualizations Section**: This consists of 4 charts.

- **Interactivity and Navigation Section**: This allows switching between different views by tabs and buttons, tooltips on hover, and clickable elements for drill-downs.
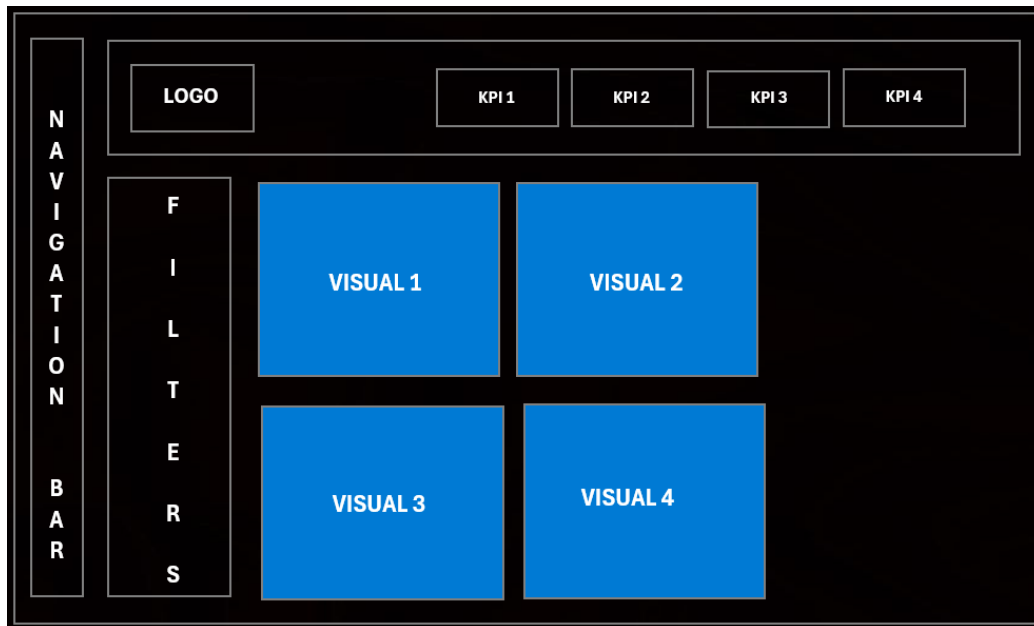

Figure 1: *Sample layout depicting our dashboard.*

A visual example of the layout on the sample of the Euro Mart Stores dashboard is given in *figure 2*. This layout offers a structured approach to designing a dashboard that is intuitive, informative, and user-friendly. By organizing the key components effectively, it ensures users can quickly access and interpret the data they need to make informed decisions.
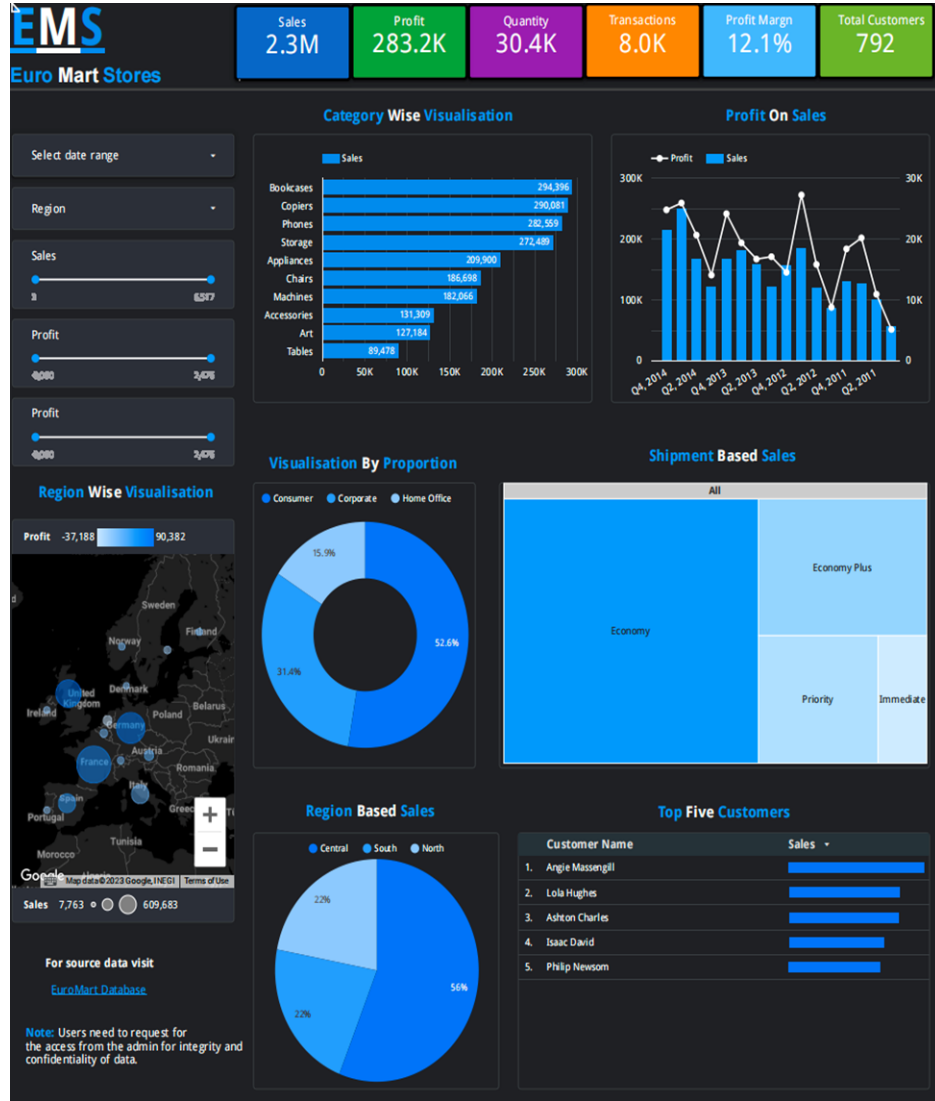

Figure 2: *A visual example of the layout on the sample of the Euro Mart Stores dashboard based on 6 KPIs.*

4.3.1 Dashboard 1

Created dashboard 1 displays financial information of the two companies during the period 2014-2023. At the top left of the dashboard is shown the title Amazon vs. Alibaba by logos of both companies. The main 4 KPI indicators are given on the top right side of the dashboard. The navigation bar is placed on the left side and displays years from 2014-2023, which can be filtered. *Figure 3* and *figure 4* show our dashboard for Alibaba and Amazon respectively through 2014-2023.

Figure 3: *Dashboard depicting financial information on Alibaba through 2014-2023.*

Figure 4: *Dashboard depicting financial information on Amazon through 2014-2023.*

14

4.3.2 Dashboard 2

Dashboard 2 has the same layout as Dashboard 1, consists of 4 visual charts, however it has differences such as KPI indicators are given on both sides of dashboards. Given dashboards allow to compare data year by year (current year vs. previous year), for example in case of filtering 2023 in navigation bar, it automatically gives comparison chart versus the previous year i.e. 2022 in this case. As shown in *figure 5* buttons with company names allow to see financial situation of each company separately.
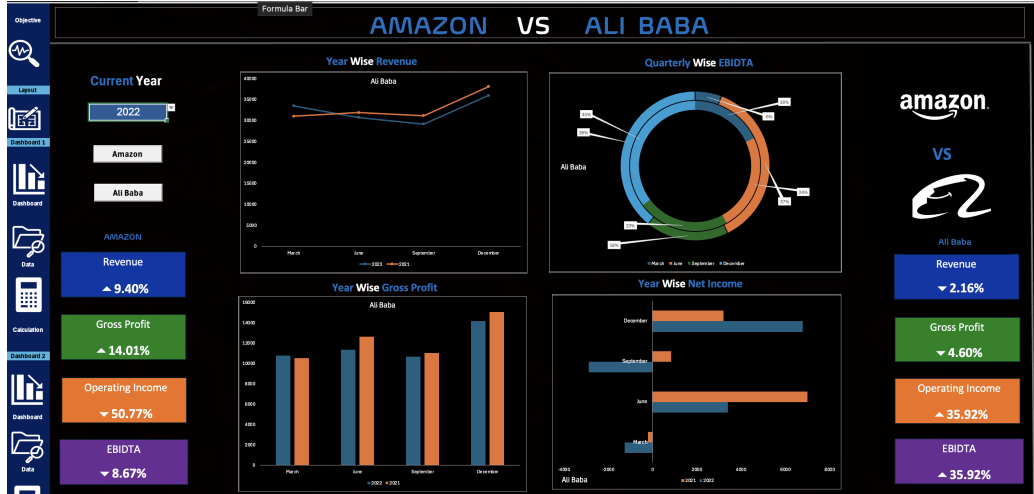

Figure 5: *A glimpse of our dashboard depicting the comparison on financial information between the years 2021 and 2022 for Alibaba and Amazon.*

4.4 Key Performance Indicators (KPIs) Overview

KPIs are specific, quantitative measures used to track and assess the performance of an organization. They are critical for strategic planning and performance management. The following financial KPIs have been selected to make a comparison between Amazon and Alibaba:

- **Revenue Growth**: Measures the increase in sales over a specific period.

- **Gross Profit**: Measures a company's profit on each sales dollar, after accounting for COGS.

15

- **EBITDA**: Provides a snapshot of the operational efficiency of a business.

- **Net Income**: Also known as bottom line or net profit, is the amount of money that remains after paying all debt and expenses within a company.

5 Insights

Dashboards in the decision-making process are essential tools that provide a visual interface to display critical data and analytics, aiding in taking proper management decisions. They aggregate and present data in a user-friendly manner that enhances the process itself by leveraging effective data visualization and real-time updates. Dashboards enable organizations to make informed and timely decisions.

5.1 Alibaba's financial performance from 2014 to 2023 across four key performance indicators (KPIs): Revenue, Gross Profit, EBITDA, and Net Income.

Revenue Analysis

- **Year-Wise Revenue (Bar Chart)**:
  - From 2014 to 2023, Alibaba's revenue shows a significant upward trend.
  - There is a noticeable jump in revenue between 2016 and 2017.
  - Revenue continued to grow steadily each year, with substantial increases observed from 2018 to 2021.
  - The highest revenue is recorded in 2021 and 2023, indicating strong financial growth in recent years.

Quarterly Wise Net Income (Line Chart)

- The quarterly net income for Alibaba is presented for the current year.

    - **March**: There is a significant rise in net income.
    - **June**: A decline is observed from the March quarter.
    - **September**: A further decline in net income.
    - **December**: Net income shows a sharp increase, rebounding to the highest point on the chart.

- This fluctuation indicates seasonal or market variations impacting Alibaba's profitability throughout the year.

Net Profit vs Operating Income (Bar and Line Chart)

- This graph compares gross profit and operating income on a quarterly basis.

    - **June**: Both gross profit and operating income are at moderate levels.
    - **September**: Gross profit shows a slight increase, while operating income rises significantly.
    - **December**: Gross profit peaks, and operating income reaches its highest level, showing robust profitability and operational efficiency.

Quarterly Wise EBITDA (Pie Chart)

- The EBITDA distribution for different quarters of the current year is presented.

    - **March**: 11% of the total EBITDA.
    - **June**: 21% of the total EBITDA.
    - **September**: 28% of the total EBITDA.
    - **December**: 39% of the total EBITDA.

- The highest EBITDA is recorded in December, indicating the highest operating performance and cash flow generation during this quarter.

Key Financial Metrics

- Revenue: $691.859 million

- Gross Profit: $295.326 million

- EBITDA: $108.211 million

- Net Income: $121.486 million

Summary

- Alibaba has shown consistent growth in revenue over the years, peaking in 2021 and 2023.

- Quarterly net income fluctuates, with significant increases in the March and December quarters.

- Gross profit and operating income have both increased steadily, with notable peaks in the December quarter.

- EBITDA is highest in the December quarter, indicating strong operational performance and profitability during this period.

These insights indicate Alibaba's strong financial performance and growth trajectory over the years, with particular strength in the final quarter of the year.

5.2 Amazon's financial performance from 2014 to 2023 across four key performance indicators (KPIs): Revenue, Gross Profit, EBITDA, and Net Income.

Revenue Analysis

- **Year-Wise Revenue (Bar Chart)**:

  – Amazon's revenue shows a significant upward trend from 2014 to 2023.

  – There is a substantial increase in revenue between 2017 and 2018.

– Revenue continues to grow steadily each year, with noticeable peaks in 2021 and 2022.

– The highest revenue is recorded in 2022 and 2023, indicating strong financial growth in recent years.

Quarterly Wise Net Income (Line Chart)

- The quarterly net income for Amazon is presented for the current year.

    – **March**: A modest increase in net income.

    – **June**: A slight decline from the March quarter.

    – **September**: A further increase in net income.

    – **December**: Net income shows a sharp increase, reaching the highest point on the chart.

    – This pattern suggests seasonal variations impacting Amazon's profitability throughout the year.

Net Profit vs Operating Income (Bar and Line Chart)

- This graph compares gross profit and operating income on a quarterly basis.

    – **March**: Both gross profit and operating income are at moderate levels.

    – **June**: Gross profit remains stable, while operating income shows a slight increase.

    – **September**: Gross profit and operating income both increase, with operating income reaching a new high.

    – **December**: Gross profit peaks, and operating income reaches its highest level, showing strong profitability and operational efficiency.

Quarterly Wise EBITDA (Pie Chart)

- The EBITDA distribution for different quarters of the current year is presented.

  - **March**: 22% of the total EBITDA.
  - **June**: 25% of the total EBITDA.
  - **September**: 24% of the total EBITDA.
  - **December**: 29% of the total EBITDA.
  - The highest EBITDA is recorded in December, indicating the strongest operating performance and cash flow generation during this quarter.

Key Financial Metrics

- Revenue: $2,967.910 million

- Gross Profit: $1,229.395 million

- EBITDA: $352.491 million

- Net Income: $109.818 million

Summary

- Amazon has shown consistent growth in revenue over the years, peaking in 2022 and 2023.

- Quarterly net income shows a general upward trend, with significant increases in the March and December quarters.

- Gross profit and operating income have both increased steadily, with notable peaks in the December quarter.

- EBITDA is highest in the December quarter, indicating strong operational performance and profitability during this period.

These insights indicate Amazon's strong financial performance and growth trajectory over the years, with strength in the final quarter of the year.

6   Conclusion

The dashboard created provides a comprehensive comparison between Amazon and Alibaba. It highlights key performance indicators and insights that are crucial for understanding the strengths and weaknesses of both companies. This analysis can aid stakeholders in making informed decisions and developing strategies for future growth.

From our comparison dashboard, we can conclude that even though Amazon started functioning after Alibaba, it turned out to be more well established. A much higher revenue of 514 billion dollars was generated by Amazon compared to 109 billion dollars by Alibaba. A higher net income of 33.4 billion dollars was generated by Amazon compared to 9.7 billion dollars by Alibaba. Amazon depicts a market capitalisation of 1.4 trillion dollars whereas Alibaba has 300 billion dollars worth of capitalisation. AWS significantly boosts Amazon's profitability with higher margins compared to its retail business.

Out of all other e-commerce platforms, Alibaba is most likely to provide a tough competition to Amazon in the coming years.

7 References

1. *Amazon.com, Inc. Harvard Business School Case Study -*
   Citation: McAfee, A., & Dessain, V. (2014).
   Amazon.com, Inc. Harvard Business School Case 9-601-057.

2. *Alibaba's Business Model and Its Success Factors -*
   Citation: Leong, K., & Tan, B. (2013).
   Alibaba's Business Model and Its Success Factors
   International Journal of Business and Management, 8(20), 12-24.

3. *Amazon vs. Alibaba: The Battle for Global E-commerce Supremacy -*
   McKinsey & Company

4. Few, S. (2006). *Information Dashboard Design: The Effective Visual Communication of Data.* O'Reilly Media.

5. Few, S. (2013). *Information Dashboard Design: Displaying Data for At-a-Glance Monitoring (2nd ed.).*

6. Eckerson, W. W. (2010). *Performance Dashboards: Measuring, Monitoring, and Managing Your Business (2nd ed.).* John Wiley & Sons.

7. Tufte, E. R. (2001). *The Visual Display of Quantitative Information.* Graphics Press.

8. Tufte, E. R. (2006). *Beautiful Evidence.* Graphics Press

9. Kirk, A. (2016). *Data Visualisation: A Handbook for Data Driven Design.* Sage Publications.

10. Munzner, T. (2014). *Visualization Analysis and Design.* CRC Press.