

Business Analytics Report

Analyzing Amazon and Facebook stock markets values using SQL and Microsoft Excel

For this project, we used two tables with information about the stock market trade of Amazon and Facebook. Both tables have information from 2012 until 2017 and the same variables and each row represent a date and the respective values of the stock at that specific date. The variables that we are going to work on are:

- Date: the day of the year in the format 'yyyy-mm-dd'.
- Open: it is the price of the stock when the market opened on a specific date.
- High: the highest price the stock reaches in the day.
- Low: the lowest price the stock reaches in the day.
- Close: It is the price of the stock when the market closed in the day.
- Volume: It is the number of stock units sold in the day.

Part 1

Q1. For both stocks AMZN and FB, on what date (YYYY-MM-DDD) did they reach out their highest and lowest value.

```
WITH highinfo AS
(
  SELECT
    'AMZN' id,
    Date,
    High
  FROM amazon
  WHERE High = (SELECT MAX(High) FROM amazon)
  UNION
  SELECT
    'FB' id,
    Date,
    High
  FROM facebook
  WHERE High = (SELECT MAX(High) FROM facebook)
),
lowinfo AS
(
  SELECT
    'AMZN' id,
    Date,
    Low
  FROM amazon
  WHERE Low = (SELECT MIN(Low) FROM amazon)
  UNION
  SELECT
    'FB' id,
    Date,
    Low
  FROM facebook
  WHERE Low = (SELECT MIN(Low) FROM facebook)
)
SELECT h.id, CAST(h.Date as DATE) AS Date, CAST(h.High as decimal(10,2)) AS
High, CAST(l.Date AS DATE) AS Date, CAST(l.Low as decimal(10,2)) AS Low
FROM highinfo h
JOIN lowinfo l ON h.id = l.id
```

Output

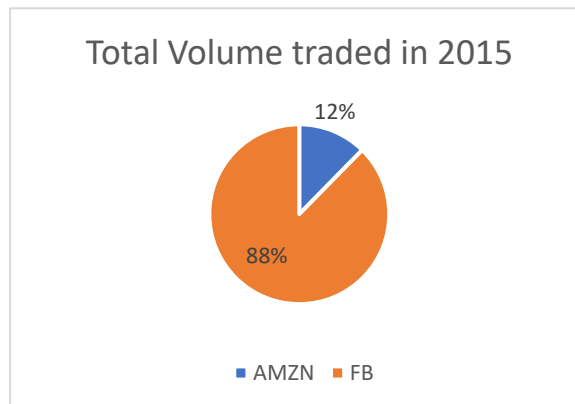
	Date	High	Date	Low
AMZN	2017-06-19	1017.00	2012-11-15	218.18
FB	2017-06-26	156.50	2012-09-04	17.55

Q2. For both stocks AMZN and FB, during 2015 what was the total volume traded for the entire year?

```
SELECT
    'AMZN' ID,
    SUM(Volume) AS 'Total Volume (2015)'
FROM amazon
WHERE YEAR(Date) = 2015
UNION
SELECT
    'FB' ID,
    SUM(Volume) AS 'Total Volume (2015)'
from facebook
WHERE YEAR(Date) = 2015
```

Output

	Total Volume (2015)
AMZN	957,045,957
FB	6,792,836,309

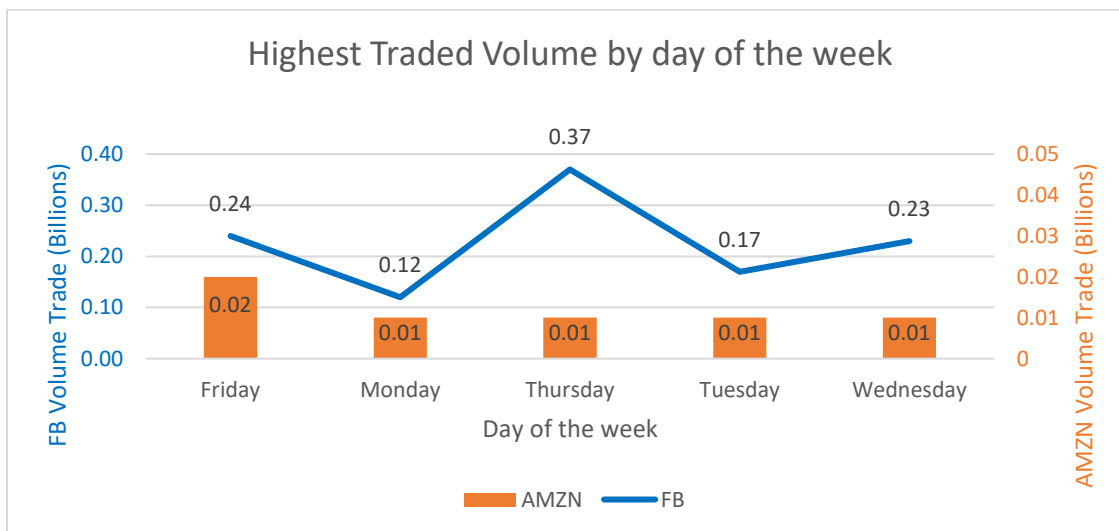


Q3. For both stocks AMZN and FB, during the period 2012-2015 what Day of the Week represents the highest traded volume for each stock?

```
SELECT
    DATENAME(dw, a.Date) AS DOW,
    FORMAT(MAX(a.Volume), '0,000,000B') AS 'Volume (Billions)',
    FORMAT(MAX(f.Volume), '0,000,000B') AS 'Volume (Billions)'
FROM amazon a
JOIN facebook f ON a.Date = f.Date
WHERE YEAR(a.Date) BETWEEN 2012 AND 2015
GROUP BY DATENAME(dw, a.Date)
```

Output

DOW	AMZN (Billions)	Volume	FB (Billions)	Volume
Friday	0.02B		0.24B	
Monday	0.01B		0.12B	
Thursday	0.01B		0.37B	
Tuesday	0.01B		0.17B	
Wednesday	0.01B		0.23B	



One important characteristic to bring up is that the Open and Close values for each day are going to follow an order which is given by the nature of the variable:

Low <= Open and Close <= High

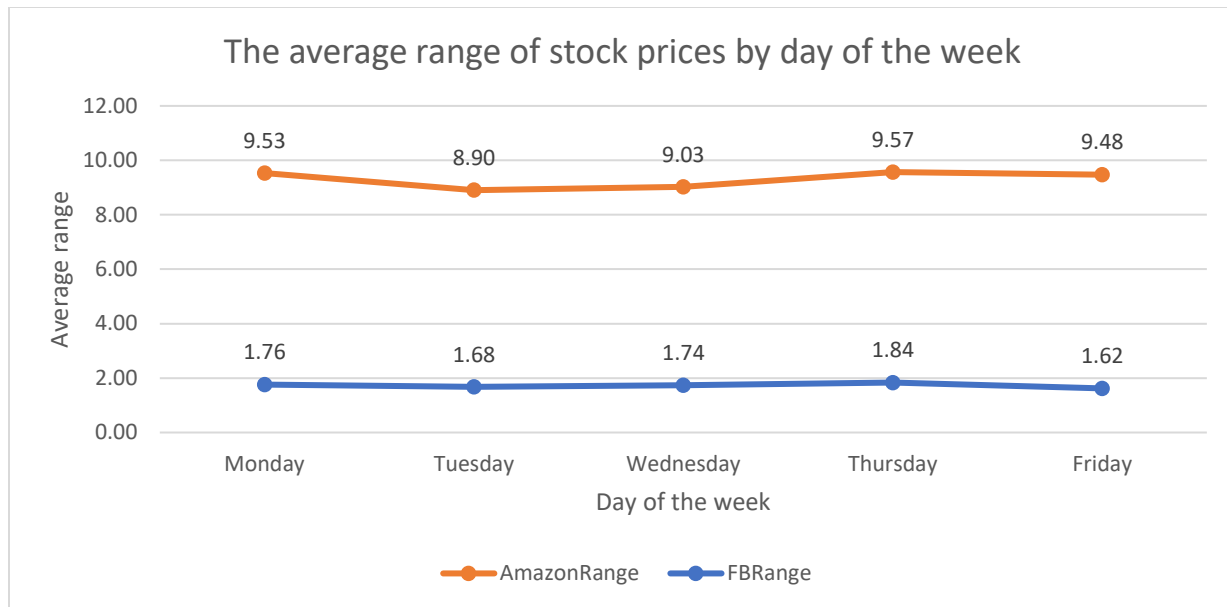
As stock market analysts we would like to know when the stock of both companies is more stable and for that purpose, we would like to explore the average range of the stock price by day of the week.

As an investor, it is always very important to try to understand the behavior of the market and get to know as much as possible about the trends and characteristics of the market. With this in mind, we would like to explore the stability of the stock market price of these two companies and for that purpose, we plan to get the average range of the prices for the day of the week.

```
/* AMAZON Range average by day of the week*/  
SELECT  
    DATENAME(dw, Date) AS DOW,  
    AVG(High - Low) AS 'AmazonRange'  
FROM amazon  
GROUP BY DATENAME(dw, Date)  
  
/* FB Range average by day of the week*/  
SELECT  
    DATENAME(dw, Date) AS DOW,  
    AVG(High - Low) AS 'FBRange'  
FROM facebook  
GROUP BY DATENAME(dw, Date)
```

Table 1 – Average ranges of stock market price by day of the week.

DOW	AmazonRange	FBRange
Monday	9.53	1.76
Tuesday	8.90	1.68
Wednesday	9.03	1.74
Thursday	9.57	1.84
Friday	9.48	1.62



With these queries, we got table 1 which shows that the stock market prices for Amazon look more stable on Tuesdays while for Facebook it is on Fridays.

Once noticed this difference we wanted to see if the day of the month could also show some relationship with the average range of the stock market price of the companies.

To get the average range of the stock prices given by day of the month we ran the following queries:

```

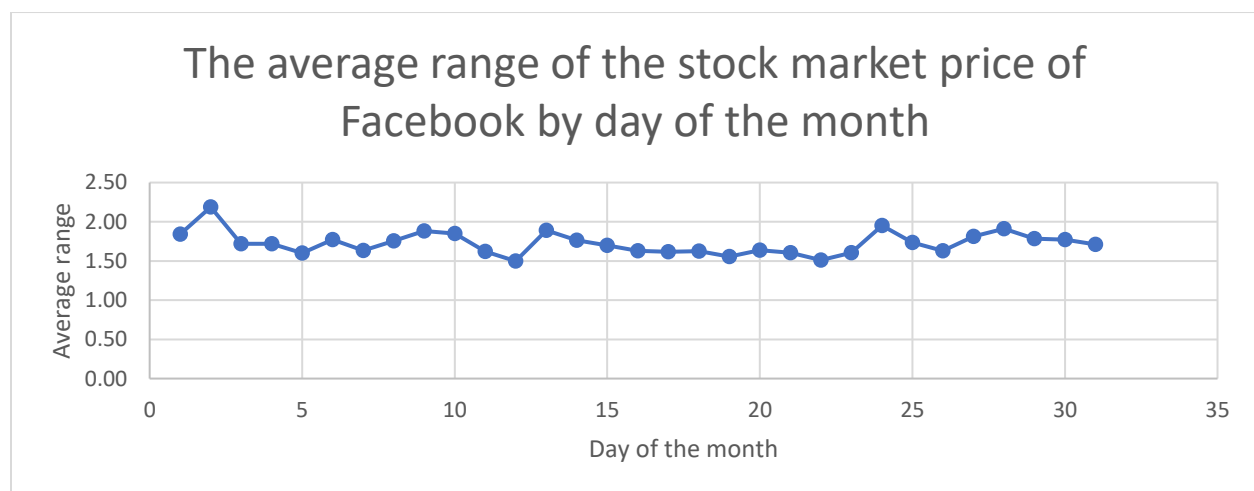
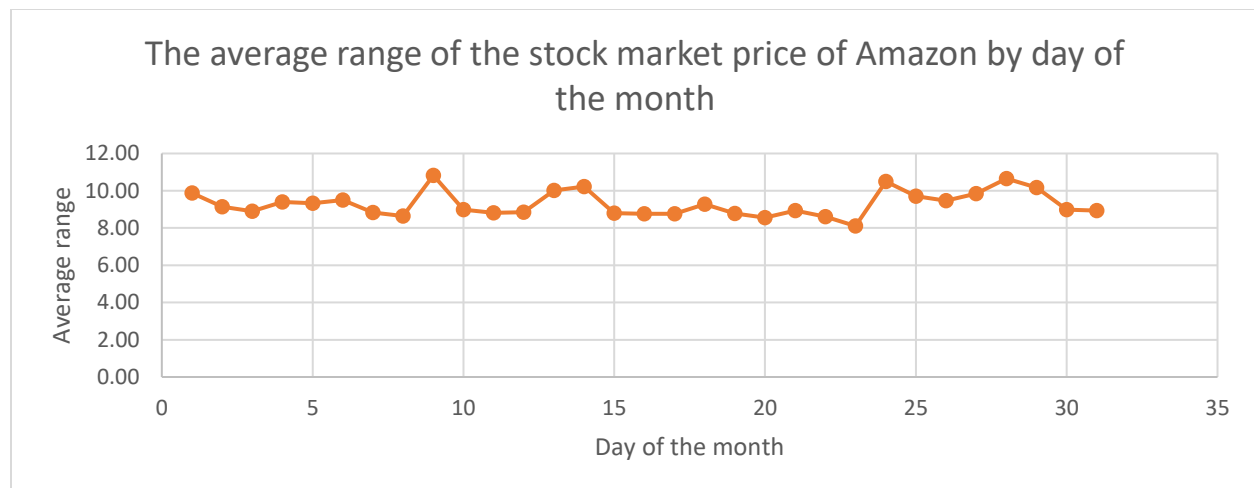
/* Amazon Range average by day of the month*/
SELECT
    DAY(Date) AS DOM,
    AVG(High - Low) AS 'AmazonRange'
FROM amazon
GROUP BY DAY(Date)
ORDER BY DAY(Date)

/* FB Range average by day of the month*/
SELECT
    DAY(Date) AS DOM,
    AVG(High - Low) AS 'FBRRange'
FROM facebook
GROUP BY DAY(Date)
ORDER BY DAY(Date)

```

Table 2 - Average ranges of stock market price by day of the month.

DOM	AmazonRange	FBRRange
1	9.88	1.84
2	9.14	2.19
3	8.90	1.72
4	9.40	1.72
5	9.32	1.60
6	9.50	1.77
7	8.83	1.63
8	8.64	1.76
9	10.82	1.88
10	8.98	1.85
11	8.82	1.62
12	8.85	1.50
13	10.02	1.89
14	10.23	1.76
15	8.80	1.70
16	8.76	1.63
17	8.77	1.62
18	9.28	1.63
19	8.79	1.56
20	8.55	1.64
21	8.93	1.61
22	8.61	1.51
23	8.11	1.60
24	10.50	1.95
25	9.70	1.73
26	9.47	1.63
27	9.84	1.81
28	10.64	1.91
29	10.16	1.78
30	8.99	1.77
31	8.93	1.71



From the tables and charts obtained in the first query, we can conclude that there is an association between the average range of the stock market prices and the day of the week.

In addition, we also got that on the days between the 15th and the 23rd of each month the average range of the stock price for both companies appears to get stability in the price so it means that the volatility of the price is not so high in those days, which combined with the information coming from the first query give us a better idea about when the costs of the stock for Amazon and Facebook behave in a less unchanging way.