

Analysis of the Financial Results of the Twitter Platform at the Beginning of Covid 19

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Abstract - The microblogging platform Twitter is the largest global network for the exchange of brief information from all areas of social life. The platform has been in existence for fourteen years, but has only stabilized its financial results in recent years. Contrary to the inclining growth and stabilization of financial results, the number of beneficiaries has declining growth, which points to the conclusion of saturation of income and number of beneficiaries. The largest number of users of the platform is in the USA, and they generate the largest number of tweets. During the pandemic, presidential elections took place in the USA, which brought the platform to the attention of the world public due to the tweets the politicians posted. All this affected the recovery and growth of the number of users on the platform. The aim of this paper is to investigate the financial operations of the platform at the beginning of the Covid 19 pandemic, as well as the movement of the number of users at that time. The results of the research can serve as a basis for other research in the field of social sciences, related to the phenomenon of the Twitter platform.

Keywords – Covid 19; microblogging; platform economy; Twitter.

I. INTRODUCTION

The platform was launched in 2006 but did not achieve much success in its first year of existence. The following year, Twitter was inducted into the South by Southwest Interactive conference, as a unicorn economy platform that was recognized as the future of communication technology. Twitter has invested in large screens showing messages from users who have installed the app and sent messages. He received the first prize of the Conference for the application and presentation model, and the daily number of tweets tripled, from 20 thousand to 60 thousand per day [1].

Twitter is a social network that allows users to exchange messages and short media content. According to the business model, it belongs to the platform economy [1] [2] [3] [4], and according to the message size limit of 280 characters, it belongs to the microblogging platform. By registering on the platform, users are enabled to receive and reply to messages. Other users can only view already posted media content. According to the frequency of use of the platform, users are divided into: a) daily active users ("DAU") and b) monthly active users ("MAU"). Daily users visit the platform at least once a day, while monthly users visit the platform at least once a month. In the third quarter of 2020, Twitter has a user community of 353

million monthly active users and 187 million daily users. Globally, 63% of users are between 35 and 65 years old. 75% of B2B companies offer and sell their products on Twitter. More than 500 million tweets are sent daily [5]. The research is focused on the analysis of financial results and the trend of the number of users at the beginning of the Covid 19 crisis. The analysis of financial stability will be made based on the results of research of selected items from the income statement. The analysis of the user community trend is directed towards the analysis of the stability of the platform, i.e. the stability of the network effect. Both sets of statistics will be analysed by regression analysis to determine individual annual rates of change and to compare the results of the analysis. Based on the obtained data, conclusions will be drawn on the stability of the platform at the beginning of the Covid 19 crisis.

II. LITERARY REVIEW

The research and analysis of the data was made on the basis of publicly published financial reports ("Fiscal Year Annual Report"), in the period of the last five years. The financial results of the business were published in the report "Form 10-K". All processed data in the paper are the result of the author's research activity over a multi-year period.

Online social networks have opened up new opportunities for communication among users as well as with the general public [6]. Social media includes applications, digital technologies and mobile devices, and those that use the Internet to create interactive dialogue between communities and individuals [7]. Using Web 2.0 technology, social media has achieved great growth in the last decade. Social media includes various forms of Internet applications, blogs, forums, user communities, bulletin boards, interactive forms, etc. [8]. The biggest social networks include Facebook, Twitter, LinkedIn, Instagram, Tumblr, Reddit and Snapchat. If we analysed all of them, we would find almost 2 billion people communicating with each other [9].

Twitter is a microblogging social network where independent users, public figures, academics, politicians, athletes, companies and others share posts containing text, images, videos and hyperlinks that have 280 or fewer characters (previously 140) [10]. Originally conceived as a mobile platform on which people could discuss what they were doing or where they were spending their time, Twitter developed into a mechanism for developing,

sharing, and contextualizing news [11]. Microblogging platforms, such as Twitter, provide researchers, scientists, entrepreneurs, activists, government officials, and other stakeholders with access to an invaluable set of data that users create and share online [12].

Twitter is simple and inexpensive to use, and you don't need to have a great deal of technological knowledge to use it [13]. According to the categorization of costs, it is classified in the model of zero marginal cost [14] [15]. Content analysis on Twitter found that tweets can be categorized into content-sharing content, emotion-inducing content, and action-inducing content [16]. Older studies on Twitter have shown a strong correlation between actual events and what was shared on Twitter as news. New studies show a significant deviation from this, and Twitter has changed from a "news spread" platform to a news verification platform [17].

Twitter users can follow the pages, quote other users (via '@username') and retweet existing tweets. The use of hashtags ('#') makes it possible to emphasize certain terms as keywords and makes it easier to find tweets on the same topic, thus spontaneously creating networked discourses and drawing the attention of the masses to certain trends [18]. Twitter's "retweet" feature can cause a snowball effect. Social media facilitates the creation of an echo ("echo effect") in which messages that reflect one's attitude can gain attention and strength [19]. The retweet feature allows users to reply to other users' messages and views. Such a situation motivates users to take an active approach, enabling them a model of communication they have never had before, thus changing the whole nature of social communication [20].

Twitter, with its social networking capabilities, greatly increases users' exposure to political and other debates [21]. Twitter protects the user community from inappropriate statements, as evidenced by the removal of Donald Trump's profile [22], or the removal of posts from global music star Kanye West [23]. Twitter has democratic potential in causing social change and helping individuals with limited media access to express their views [24]. However, Twitter can also be used to spread hate speech against minorities and other vulnerable groups [25]. Twitter improves relationship building and allows citizens to create, filter and share content [26]. The image that is sometimes tied to Twitter, as a platform on which powerful politicians advertise, is in fact inconsistent with its fundamental vision of creating equal opportunities for all who want to post something publicly on social media [27].

Dunhan and Garcia (2020) explore the impact of Twitter and other advertising media on changing investor sentiment. Research proves the existence of a link between the feelings developed by investors influenced by news on Twitter with the movement of stock prices and other securities [28]. Specifically, networked socially responsible behaviour ("CSR") in communication can be an important driver for identifying consumer firms ("C-C"), which is largely defined as the relationship that consumers establish with firms that help them meet one or

more key needs [29]. Twitter is defined as the largest and most popular microblogging platform, and user activity is determined by their roles in the communication process. The roles could be defined like: leaders, followers, message list followers and participants in reviewing and retweeting (process dynamics). User activities are determined by the interaction and communication between users on the social network [30].

III. DATA ANALYSIS

The research of the platform's business is divided into two basic areas and the analysis of the connection between these two areas. Two basic areas include: a) financial analysis of profit and loss account data; and b) statistical analysis of the trend in the number of platform users.

Financial analysis involves researching a trend and understanding the movement of underlying financial indicators. The research of the trend in the number of users is focused on the analysis of the user community on the platform and the prediction of financial operations in the future.

The third part of the research analyses the correlation between the results of the analysis of financial factors and the results of the analysis of statistical indicators related to the trend in the number of users. The research is aimed at finding answers to two fundamental questions:

- Q1: How financially resilient is the platform to the crisis caused by the Covid 19 pandemic?
- Q2: What are the trends in user numbers in the context of the Covid 19 pandemic?

Data were collected from the Twitter Annual Report 2019 and earlier reports as well as from specialized websites dealing with platform economics analytics.

A. Financial analysis

The research and analysis of the financial result covers the period from the last five years, from 2015 to 2019. For the purposes of the analysis, categories from the financial statements were selected and the analysis of gross profit was made. In the analysed period, revenues increased from \$ 2.218 billion to \$ 3.499 billion, an increase of 56%. Revenues continued to grow in all periods except 2017 when they fell by 3.4%. We can relate the result directly to the post-election year when user interest in platform posts decreased. In the context of the first research question, the result of the analysis already indicates a much stronger link between the presidential election and the financial result than the link between Covid 19 and the financial result. In the analysed five-year period, Cost of revenue increased by 55.9%. The average gross profit was 66.1%. The share of gross profit decreases towards 2017, and then increases. In the last two analysed periods, the share of gross profit is above average. The results of the analysis are shown in Table 1.

Total costs and expenses in the analysed period increased from \$ 1.488 billion to \$ 2.322 billion, an increase of 15.9%. The increase in other expenses was

40% less than the increase in the cost of revenue. Stabilization of operations, i.e. growth of costs, had a direct impact on the overall financial result. Income (loss) from operation was negative in the first period analysed and amounted to -450.036 million dollars. In 2017, revenue was positive, and Twitter no longer recorded operating losses. Although revenue was lower than in 2016, income from operation was positive for the first time. This is a result of lower sales and marketing costs as well as lower general and administration costs than the previous year.

In the post-election year, with lower total revenues, the overall financial result recovered. In the context of the first research question, the platform's greater dependence on the presidential election than on the Covid 19 pandemic is confirmed. The results of the analysis are shown in Figure 1.

B. User trend analysis

The Twitter user community is divided into "monthly active users" and "daily active users". Table 3 shows the MAU number for the 11-year period. In the period between 2010 and 2020, the number of MAU increased from 49 million to 353 million, which is the growth of 620%. According to the results of the analysis of Descriptive Statistics, the average number of users in the analysed period ("mean") was 246.97; Mod 330 and Median 304; standard deviation 102.26. Kurtosis is -0.556 which is the result of a slower growth in the number of users. Skewness -0.959 due to a digressive increase in the number of users. Confidence Level is 31,472. In the period between 2015 and 2019, revenue increased by 56% and MAU by 7%.

We can conclude that there is no correlation between

TABLE 1. CONSOLIDATED STATEMENT OF OPERATION DATA (000 \$)
Source: Own illustration

	2015	2016	2017	2018	2019
Revenue	2.218.032	2.529.619	2.443.299	3.042.359	3.459.329
Cost of revenue	729.256	932.240	861.242	964.997	1.137.041
Gross profit	1.488.776	1.597.379	1.582.057	2.077.362	2.322.288
%	67,1%	63,1%	64,8%	68,3%	67,1%
Total cost and expenses	2.668.068	2.896.827	2.404.559	2.589.034	3.092.956
Income (loss) from operations	-450.036	-367.208	38.740	453.325	366.373
Net income (loss)	-521.031	-456.873	-108.063	1.205.596	1.465.659

TABLE 2. REGRESSION ANALYSIS OF SELECTED ITEMS
Source: Own illustration

	<i>Regression equation</i>	R^2	<i>s</i>
Revenue	$y = 299533x + 2E+06$	0,8852	10,93
Cost of revenue	$y = 84833x + 755290$	0,8087	9,17
Gross profit	$y = 214701x + 1E+06$	0,8629	11,84

The results of the regression analysis are shown in Table 2. Total revenues grew by an average of 10.93% per year with a coefficient of determination of $R^2 = 0.8852$. Cost of revenue grew by an average of 9.17% per year with a coefficient of determination of $R^2 = 0.8087$. In the same period, gross profit grew by an average of 11.84% per year with a coefficient of determination of $R^2 = 0.8629$.

Comparing the results of the financial analysis in Table 1 with the results of the regression analysis, it is obvious that Twitter has stabilized financial operations. Gross profit grows above the increase in the cost of revenue, and total costs and expenses recorded a larger increase only in the last analysed period. All this was reflected in the net profit, which is rapidly recovering and continuously growing. In the context of research questions, the platform proved financially resilient to the crisis caused by the Covid 19 pandemic. Income (loss) from operation fell by 19.2% in the last analysed period, but net profit increased by 21.57%.

revenue growth and MAU growth. The growth in the number of users is digressive, and in the third quarter of 2018 it was negative compared to the same period last year. Significant growth in the number of users compared to the previous period was achieved in the third quarter of 2020. The trend of the number of users is unchanged throughout the analysed period, except in the last frequency. From this it can be concluded that the platform is resistant to the impact of a pandemic when analysing the MAU number. The increase in the last period can be explained by the presidential campaign in the USA and the increase in the number of users who share tweets. The trend of the number of users ("MAU") was analysed by a linear regression equation ($y = 28.569x + 111.31$) with a coefficient of determination of $R^2 = 0.8335$. The average growth in the number of users in the analysed period was 11.24% per year ($s = 11.24$). Growth is slow and digressive which confirms the Skewness score -0.959.

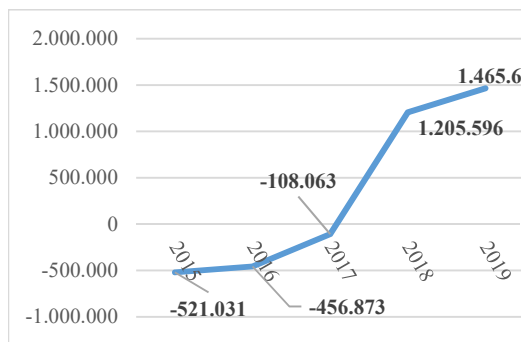


Figure 1. Net income (loss) (000 \$)
Source: Own illustration

In the last three analysed periods, the linear regression trend equation passes above the points of the value of the number of users, which indicates the saturation of the number of MAU on Twitter. Despite the recovery in the number of users, due to the presidential campaign, the trend line is above the value points.

The DAU trend is completely opposite and the number of users is constantly growing. In the period from 2017 to 2020, it will increase from 109 million to 166 million, an increase of 52%. The increase in the number of DAUs correlates much more strongly with the increase in revenue from the increase in the number of MAUs. The biggest increase is in the first and second quarters of 2020, which is directly related to the presidential campaign. In the same period, the largest increase is also MAU. The results of descriptive statistics showed that the average number of users in the analysed period ("mean") was 136.6 million; standard error 6.68; median 126; standard deviation 25,873. The value of Kurtosis is -0.107, which indicates a slow and linear increase in the number of DAU; Skewness -0.998 due to a slight increase in the number of users. Confidence level is 14,328. The trend in the number of users ("DAU") was analysed by a linear regression equation ($y = 5.4607x + 98.375$) with a coefficient of determination of $R^2 = 0.8909$. The average increase in the number of users is 3.27% quarterly ($s = 3.27$). In contrast to MAU, in the last two analysed periods the points of

TABLE 3: MAU ON TWITTER
Source: Own illustration

MAU	million	%
Q3 2010	49	
Q3 2011	101	106,12%
Q3 2012	167	65,35%
Q3 2013	232	38,74%
Q3 2014	284	22,57%
Q3 2015	307	8,10%
Q3 2016	317	3,26%
Q3 2017	330	4,10%
Q3 2018	326	-1,21%
Q3 2019	330	1,23%
Q3 2020	353	6,97%

value are above the regression direction, which indicates a positive growth rate of DAU. The biggest increase in DAU is in the second quarter of 2020. We can conclude, as with MAU, that the platform is resistant to the Covid 19 crisis, i.e. the trend in the number of users is constant.

TABLE 4: DAU ON TWITTER
Source: Own illustration

DAU	million	%
Q1 2017	109	
Q2 2017	110	0,92%
Q3 2017	114	3,64%
Q4 2017	115	0,88%
Q1 2018	120	4,35%
Q2 2018	122	1,67%
Q3 2018	124	1,64%
Q4 2018	126	1,61%
Q1 2019	134	6,35%
Q2 2019	139	3,73%
Q3 2019	145	4,32%
Q4 2019	152	4,83%
Q1 2020	166	9,21%
Q2 2020	186	12,05%
Q3 2020	187	0,54%

IV. CONCLUSION

Twitter has grown into the largest, but also globally most influential microblogging platform. One of the competitive advantages of Twitter is recognized in the habits of use because the platform is not only a medium for exchanging information but also serves users to check information. The daily number of posts and user interactions guarantee a stable network effect and long-term stability of the platform. Analysing the financial aspect of the platform's business, in the context of the first research question, the results of the research showed that the platform is fully financially resilient to the crisis caused by the Covid 19 pandemic, in contrast of previous year. In the last analysed period, net profit also grew by 21.6% compared to the previous year, which reinforces the claim that the platform is financially fully resilient to the Covid 19 crisis.

The trend in the number of users is unchanged for the entire analysed period, which is the answer to another research question. The MAU trend maintained regressive growth with a slight recovery in 2019 and 2020. A slight change in the trend is more the result of user-related activities related to the presidential election than was affected by the pandemic. The number of DAU users is continuously growing from year to year and this trend continues in 2019, at the beginning of the Covid 19 crisis. Only in 2020 does it have a sharp increase in the second quarter, and then this growth stabilizes in the third quarter. And for this change we can conclude that it is more related to the presidential election than to the Covid 19 crisis.

In the context of another research question, we can conclude that the Covid 19 crisis did not significantly affect the trend in the number of platform users. One of the reasons for such a research result can be found in the age group that most often uses the platform, which is the population between 35 and 65 years that is less susceptible to a pandemic. The following research raises the question of the extent to which the platform will maintain revenue growth and user numbers after the end of the pandemic and the presidential election.

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