
Did Transformational Leadership Play a Role in Changing the Overall Performance of a Major US Corporation?

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ABSTRACT

Prior work has discussed how Pfizer in partnership with BioNTech developed and produced the mRNA vaccine in record time to ward off the deadly Covid virus (Bourla, 2021). The Chief Executive Officer (CEO) of Pfizer played a valiant role in motivating the workforce of Pfizer to achieve this milestone in a very short period. However, no study in the past has evaluated the traits of a transformational leader as exhibited by the CEO of this company during the Covid-19 virus crisis period and beyond. Further, no prior work has documented whether the financial wellbeing of Pfizer has improved under the current CEO's leadership. This paper aims to close this gap in the knowledge base. This work shows that although the current CEO exhibited some of the pertinent traits of a successful transformational leader, the financial condition of the company has only improved somewhat under his leadership.

Keywords: Transformational leader, Covid-19, Pfizer, earning per share, net income

INTRODUCTION

The purpose of this research study is to determine whether the Chief Executive Officer (CEO) of a major US pharmaceutical company – Mr. Albert Bourla, of Pfizer had exhibited the traits of a successful transformational leader during the pandemic crisis period and beyond that period. On March 19, 2020, as COVID-19 virus spread throughout the world, the CEO of Pfizer (Bourla, 2021) upped the ante on the workers of Pfizer and implored them to take a lofty challenge to develop a vaccine to ward off COVID-19 virus in a record period, before the end of the year, 2020. Bourla (2021) asked his employees to think out-of-the-box in their Herculean task to develop a new kind of vaccine to fight COVID-19 virus. Racing against time Pfizer employees working with their counterparts of the German company, BioNTech developed a vaccine with an efficacy rate of 95.6% by late November 2020 (Bourla, 2021). On December 11, 2020, Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for the first COVID-19 vaccine – the Pfizer-BioNTech COVID-19 vaccine (FDA, 2020).

A transformational leader can not only influence and change the morale of the company's workforce but can also influence the financial performance of the company. The timeline of the development of the Pfizer-BioNTech Covid-19 vaccine has been well documented (Bourla, 2021). However, no work exists in the literature on whether the CEO of Pfizer, Mr. Alfred Bourla, has been able to influence the financial performance of Pfizer, since he rose to the helm in 2019. It is proposed to document in this study Mr. Bourla's success at Pfizer in transforming

the morale of the workforce as well as the financial performance of Pfizer.

The next section provides a brief literature review on transformational leadership, which is then followed by the results section, the discussion section, and finally the concluding section.

LITERATURE REVIEW

Bass (1985) documented that a transformational leader can build a highly effective and successful organization. Barling, Weber and Kelloway (1996) enunciated that after the senior managers had received training in transformational leadership - it resulted in significant effects on subordinates' perceptions of leaders' transformational leadership, subordinates' own organizational commitment, and improved certain aspects of branch-level financial performance.

Strukan, Nikolic and Sefic (2017) stated that the transformational leaders play positive roles in successful financial performance and new product development tasks in their organizations.

Sayyadi (2020) documented that transformational leaders influenced business performance through improved use of data, information, and knowledge to increase speed, lower cost, and meet customer expectations. Syaadi (2020) opined that transformational leaders not only directly impact knowledge management, but foster more effective information technology use, which leads to the effectiveness of knowledge

management as a significant driver of financial performance of organizations.

Geibel and Otto (2022) found that the relationship between work engagement and performance of transformational leaders was stronger when the leaders felt a strong belonging and emotional attachment to their organization. Palekar, Pardhi and Jindal (2022) stated that one of the unique characteristics of a transformational leader is one who can initiate a rapid change in his organization.

According to O'Reilly and Chatman (2020) transformational leaders challenge the way things are in an organization, share their vision of a grandiose future, thus motivating their followers to join in the pursuit of a better future for their organizations. But many of these transformational business leaders are risk seeking, manipulative, and hostile. According to these authors narcissist transformational leaders with grandiose vision can actually destroy their organizations.

Geibel, Rigotti, and Otto, (2022) examined the link between well-being of the leaders of organizations, which is reflected by perceived general health and work engagement (dedication and vigor), their self-appraised transformational leadership behavior, and team performance in a sample of 276 leaders. Geibel et al. (2022) found significant positive effect of leaders' well-being on their transformational leadership behavior over time. However, this study also showed that through transformational leaders' help to elevate the performance of their teams, their own' well-being over time might be diminished, indicating a resource loss.

Sayyadi (2023) stated that successful transformational leaders show the following distinctive strengths in their professional careers which are: 1. strengths they have acquired through their previous jobs, 2. use transformation as a tool to optimize their business and create innovation to renew its strength, 3. Transformational executive leaders are storytellers, and 4. The transformational executive leaders have a clear and precise roadmap to achieve the new reality they want to manifest.

DATA COLLECTION

Pfizer Inc. is listed on NYSE with the ticker symbol of PFE and has a market capitalization of \$202 billion. Pfizer Inc. discovers, develops, manufactures, markets, distributes, and sells biopharmaceutical products worldwide (Yahoo: Pfizer, 2023),

METHOD

As documented by Krisnamurti, Chowdhury, and Han (2021), the actions taken by the CEO of a company can

affect the stock price of that company. It is proposed to test whether the stock prices of Pfizer were different in the last trading month (December) of each of the years since Bourla assumed the position of CEO in 2019. The question we propose to answer is: did the stock price of Pfizer differ significantly in December of each of the four years - 2019, 2020, 2021, and 2022? December being the final trading month of each year - stock price data from December 2019, December 2020, December 2021, and December 2022 are compared to gauge the change in stock price from one year to the next year.

We propose that the daily closing prices on each trading day in the final month of each year since Bourla assumed the CEO position in 2019 will differ. More formally, we hypothesize:

H_1 . *Ceteris Paribus*, the closing price on each day in the month of December of each year (that is, 2019, 2020, 2021, 2022) will differ.

In the current research work, the daily closing prices of Pfizer stock in the final month of December 2019, December 2020, December 2021, and December 2022 are collected from yahoo finance website (Yahoo: Pfizer, 2023).

Parametric hypothesis tests usually assume normal distributions and i.i.d. (independent and identically distributed random variables) of financial returns (Sharifzadeh and Hojat, 2012; Nandy and Sussan 2022). Harwell (1988) demonstrated that using non-parametric hypothesis tests would reduce the chances of Type I error, especially when sample sizes were small. In this paper, we choose to use Kruskal-Wallis non-parametric hypothesis test to compare the median stock prices in December 2019, December 2020, December 2021, and December 2022, thereby assuming that the daily prices in the month of December of each year are independent of each other. A 5% level of significance (risk of type I error) will be used to conduct the hypothesis test. The test statistic used for Kruskal-Wallis test is designated by H , where, $H = [12/n(n+1)] [\sum (R_1)^2/n_1 + \sum (R_2)^2/n_2 + \dots + \sum (R_k)^2/n_k] - [3(n+1)]$, with $k-1$ degrees of freedom $k =$ number of populations ($k=4$ in this work.), $\sum_{rk} =$ sum of the ranks of the k -th December price, $n_k =$ size of trading days in December 2019, December 2020, December 2021, and December 2022 - being 21, 22, 22, and 20 respectively, thus total sample size, $n = n_1 + n_2 + n_3 + n_4 = 85$. The distribution of the sample H statistic is very close to that of the chi-square distribution with $k-1$ degrees of freedom when every sample includes at least five observations. This situation is true in this analysis. The p -value of H is calculated using the chi-square distribution with $k-1$ degrees of freedom.

RESULTS

Evaluation of Financial Performance

Table 1 shows market capitalization, annual revenue, gross profit, net income and earnings per share data of Pfizer from 2019 through 2022. This data set has been obtained from Yahoo finance website:

It is observed from Table 1, that the total revenue of Pfizer has fluctuated significantly under Bourla's leadership role from 2019 onwards. In the pre-pandemic years there was a decline (19%) in revenue from 2019 to 2020. However, revenue picked up significantly with the introduction of Pfizer-BioNTech Covid-19 vaccine in 2021 and increased by a large amount (332.6%) between 2020 and 2021. As the demand for the vaccine declined in 2022 with most of the global population being vaccinated by that time, there was a sharp decline (-44%) in revenues from 2021 to 2022, possibly because of the drop in demand for Covid-19 vaccine. However, the net income has increased every year since 2019. Net income has more than doubled from 2019 to 2020 and from 2020 to 2021, and only slightly from 2021 to 2022. Earnings per share have declined from 2019 to 2020 but have increased from 2020 to 2021 and from 2021 to 2022. While earnings per share more than doubled between 2020 and 2021, earnings per share increased only somewhat from 2021 to 2022. This shows that although the introduction of the Covid-19 vaccine improved the financial performance of Pfizer, its positive effect is observed to be slowing down in 2022.

Table 2 shows the closing prices of Pfizer stock on each of the trading days in December 2019, December 2020, December 2021, and December 2022. Stock price data have been gathered for each trading day of the last trading month of each of the four years under- Bourla's leadership to assess whether there were significant changes in stock prices at the end of each year,

Next the Kruskal Wallis test was performed to compare the median price in December of each year. Table 3 shows the results from the Kruskal Wallis test.

As shown in table 3, the value of the test statistic is 54.62 ($p=0.000$). Thus, we can reject the null hypothesis of equality of stock prices of Pfizer in December 2019, 2020, 2022, and 2023. Specifically, it is observed from table 2 that the median prices are significantly higher in December 2022, and December 2021, from those in December 2019 and December 2020.

Evaluation of Transformational Leadership

As mentioned in the literature review section, Sayyadi (2023) stated the four major characteristics of a transformational leader. In this section Bourla's performance against each of these criteria will be evaluated:

1. Strengths they have acquired through their previous jobs (Syaadi, 2023):

Albert Bourla, (Bourla, 2021), a veterinarian joined Pfizer as a technical director in Pfizer's animal health business in Greece after earning a Ph.D. degree. He worked up through the ranks to become group president of the animal health business, overseeing its global operation from the US. In 2014, Bourla became the group president for global vaccine, oncology, and consumer health care business of Pfizer. In 2016 he assumed the leadership role in Pfizer's Innovative Health Division and was put in charge of Research and Development of Pfizer's consumer health care, vaccines, oncology, and other business groups. Bourla's role in this position was that of a as a venture capitalist who arranged funding for the best business ideas. In 2018 Burla was promoted to COO position, and finally in 2019 he became the CEO of Pfizer. As is evident from Bourla's continued progress to reach the pinnacle of corporate leadership at Pfizer, he had acquired varied strength from his progressively complex roles in Pfizer.

2. Transformational leaders use transformation as a tool to optimize their business and create innovation to renew its strength

Pfizer has used the innovative messenger RNA (m-RNA) technology) to develop the COVID -19 vaccine. Pfizer is currently using this same innovative technology to develop

Table 1: Financial Results of Pfizer from 2019 through 2022

Pfizer	12/31/2022	12/31/2021	12/31/2020	12/31/2019
Market cap (Billions \$)	230.00	287.00	245.00	294.00
Total Revenue (Millions \$)	100.33	181.29	41.91	51.75
Change in total revenue from prior year	-44.7%	332.6%	-19.0%	
Gross Profit (Millions \$)	65.99	50.47	33.22	41.53
Net Income (Millions \$)	31.27	21.98	9.62	1.63
Change in net income from prior year	42.3%	128.6%	490.9%	
Earnings Per Share (\$)	5.47	3.86	1.63	2.82
Change in EPS from prior year	41.7%	136.8%	-42.2%	

Table 2: Closing Price of Pfizer stock price on each trading day in December 2019, 2020, 2021, and 2022 Pfizer stock price

December 2019	December 2020	December 2021	December 2022
31.54	35.61	51.34	49.52
31.34	36.87	49.80	49.36
31.42	36.23	50.96	49.18
31.33	36.45	48.34	48.19
31.54	37.28	48.57	48.71
31.56	38.46	48.26	50.20
31.70	37.82	48.90	50.14
31.48	37.71	49.56	50.57
31.75	37.16	51.83	51.45
31.57	35.43	52.15	52.82
32.24	34.98	55.21	51.97
32.04	34.19	57.51	49.83
32.03	34.37	55.85	49.79
32.10	34.05	57.30	49.75
32.31	33.78	55.35	50.08
32.39	33.20	55.92	50.06
32.36	33.83	55.13	50.25
32.44	33.68	55.59	49.57
32.39	33.27	54.47	49.25
32.05	33.48	54.07	49.76
32.27	33.20	54.84	
	33.26	55.45	
32.03	34.67	54.27	49.81
31.90	35.20	53.02	50.02

Table 3: Calculated values from Kruskal Wallis test

Month	N	Mean Rank
December 2019	21	11
December 2020	22	32.5
December 2021	22	69.6
December 2022	20	58.9
Chi-Square	54.62	
df	3	
p-value	0.000	

targeted JAK inhibitor drugs for Pfizer's inflammation and immunology business under Bourla's leadership (Bourla, 2021). Pfizer is also currently developing next generation targeted cancer agents to treat melanoma, breast, and prostate cancer. It is quite evident that Pfizer is using transformation as a tool to optimize Pfizer's business.

3. Transformational executive leaders are storytellers

Transformational leaders attempt to build corporate culture through storytelling, drawing on teaching points and history to convey examples of a new reality of the future for employees and help them design a clear plan. Early on after assuming the role of CEO, Bourla realized

that although Pfizer had a storied past in developing important drugs, most of those drugs had lost their patent protection (Bourla 2021). So, Bourla brought on a new leadership team and motivated his workforce to develop innovative products. He formed a partnership with a smaller German pharmaceutical company – BioNTech to apply its messenger RNA technology to develop new vaccines to fight Covid-19 virus.

4. Transformational executive leaders have a clear and precise roadmap to achieve the new reality they want to manifest (Sayadi, 2023).

With the rapid spread of COVID-19 vaccine in early 2022 – it was clear to Bourla that by forming a strategic partnership with BioNTech, Pfizer can partner with by BioNTech to develop a vaccine to fight COVID-19 vaccine. The CEO of Pfizer challenged his work force to come up with the vaccine in record time. He participated in regular meetings with his vaccine development team to brainstorm on meetings twice a week. He worked closely with FDA to get the Pfizer-BioNTech Covid-19 approved in record time.

CONCLUSION

This study shows that Bourla (2021) has acted as a transformational leader in motivating the employees to rise to the task of the development and production of the Pfizer-BioNTech Covid-19 vaccine. In 2021, the year when majority of the global population had sought the Covid-19 vaccine - Pfizer's annual revenue and net profit increased significantly, in 2022, both revenue and gross profit declined. Further, the stock price saw a significant boost in 2021 from the introduction of the Covid-19 vaccine. However, in 2022 the stock price did not show that same momentum for growth. Thus, Pfizer produced a mixed bag of financial results from 2019 through 2022, under Bourla's transformational leadership. In future Pfizer have plans to apply its mRNA technology (used in the Covid-19 vaccine) to develop drugs to cure other life-threatening diseases. That can further improve the financial performance of this company. Future work can reevaluate the financial performance of Pfizer under Bourla's leadership in future years.

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