The Analysis of Covid-19 Vaccine Influence on Pfizer Business

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Abstract. Various sectors of the global economy have been affected to varying degrees by the Newcastle pneumonia outbreak, and the pharmaceutical industry is no exception. Vaccines, which are essential for fighting the epidemic, have brought new growth opportunities to many pharmaceutical companies. In this paper, Pfizer is adopted as an example to analyze its business strategies and revenue changes before and after the outbreak using the literature research method. After that, this paper compares Pfizer and other companies from three perspectives of Profitability, Liquidity and Revenue, and concludes that Pfizer's business is more stable and sustainable, and vaccines bring Pfizer huge profits. Finally, Pfizer’s current competitive advantages are analyzed from three perspectives: patents, global coverage of vaccines, and business strategies, and further investment judgments are drawn from policy and technology disputes. Overall, Pfizer can quickly make strategic adjustments and actively respond to difficulties when it is in trouble, and still maintain good business conditions during the epidemic, making it a good investment value, while also improving its own R&D capabilities and continuing to expand its advantages.

Keywords: Pfizer, Vaccines, Investment value, Business Condition.

1. Introduction

1.1 Background

Nations suffered from great financial loss and their average GDP growth was 5.2% lower than expected because of the pandemic broke out in March 2020 [17]. Under economic downturn resulted from economic pressure of all rounds of industry and high cost of treating patients and lockdown policies, governments competed for purchasing COVID-19 vaccine, thus financially benefited pharmaceutical companies like Pfizer. Pfizer witnessed a revenue growth of more than 98% from 2019 to 2021 [12]. However, as epidemic prevention policy is generally loosening in the post-pandemic era, Pfizer is facing the challenges of adjusting the strategy of COVID-19 vaccine product line and maintaining technical leading edge in the fast-growing industry. Because Pfizer has both opportunities and risks, whether investing on Pfizer is required to be analyzed.

1.2 Related Research

Pfizer will encounter a series of problems in its development process and encounter a bottleneck in its development. In the past few years, Pfizer's revenue has declined, it is no longer the world's top pharmaceutical company in terms of sales, and the advantage of being large-scale has become less obvious. Through financial strategy matrix analysis and comprehensive evaluation of financial competitiveness, Ren and He concluded that Pfizer's biggest deficiency stems from the difficulty of innovation ability to drive corporate value growth, resulting in a lack of growth [1]. Wu found that after the merger, Pfizer showed obvious financial synergy and operational synergy, and achieved growth in sales, theory, and assets, as well as broadening of product lines and business scope, but the R&D capability in management synergy was not greatly optimized [2], and the problem still exists.
Hongmei believes that the main reason why Pfizer is sitting at the top of the global competitive landscape is the marketing capability [3]. Thus, it seems that Pfizer, which has been upholding the scale of operation, was not in demand before the transformation of several pharmaceutical companies.

Therefore, how to save the bottleneck dilemma and achieve long-term development in the future has become an inevitable problem on the road of Pfizer's development. In 2019, the global epidemic raged, and the identification and impact effects of the new crown epidemic crisis were analyzed in terms of the impact on the company's ability to finance, invest and innovate, pointing out that innovation is the key [4]. Pfizer found itself not to do, and finally found a new starting point, they developed the world's first marketed m RNA vaccine in collaboration with the German company BioNTech, which alone has helped Pfizer to return to the throne of the world's top pharmaceutical company in terms of revenue in the first half of 2021 [5].

The success of Pfizer's COVID-19 vaccine development has increased Pfizer's influence in the world. Pfizer Chairman and CEO Albert Bourla's 2021 Letter From Our Chairman & CEO said that: They have provided COVID-19 vaccines and drugs to more than 1.4 billion people around the world, meaning that one out of every six people in the world has used a Pfizer product. That's a level Pfizer hasn't reached before [6]. And Julia Kollewe points out that Pfizer and Modena are the biggest winners from COVID-19, especially since Modena was only a small company a decade or so before COVID-19 hit. The market may not be able to make money on a sustainable basis in the future, but Pfizer and Modena are already generating revenue that companies have never seen before because of COVID-19 [7].

While COVID-19 vaccines have been accepted and used in most countries, the development of COVID-19 vaccines and research into the COVID-19 virus has remained a priority in recent years. Because inevitably COVID-19 vaccines have side effects that need to be refined. And because vaccines are not widely available in developing countries, production often needs to be faster. CEPI recently issued a call to support global COVID-19 vaccine development efforts that follow three imperatives: speed, mass production and deployment, and global accessibility [8].

And the impact of COVID-19 vaccine on Pfizer has not only been felt in terms of revenue, but also in the stock market. The bio-pharmaceutical sector provides effective solution to the economic, health, and social crises caused by the COVID-19 pandemic. The article identifies policies and strategies for COVID-19 vaccine research that are conducive to sustainability, as Pfizer's stock returns during COVID-19 were higher than average due to news of successful COVID-19 vaccine development and positive COVID-19 vaccine information disclosure [9]. In the article "COVID-19 Vaccines and Global Stock Markets", it is noted that global stock markets reacted positively when COVID-19 vaccines became widely available, placing more emphasis on vaccines produced in China and the United States. The stock market moves are conveying expectations about the vaccine [10].

1.3 Objective

This study will evaluate investment value of Pfizer from three aspects. The structure of the paper is as follows. Firstly, financial analysis in terms of profitability, liquidity and revenue concludes that Pfizer has increasing revenue generating capacity and relatively stable financial performance during the pandemic. Next section talks about why Pfizer COVID-19 vaccine is most widely accepted in the world according to patent, efficiency, collaboration and operation strategy factors. Afterward, this study points out the possible effects of loosen pandemic polices on vaccine demand as well as risks of patent disputes and collaboration inconsistency that Pfizer may face with. The concluding section summarizes the current study and discusses some suggestions.
2. **Fundamental analysis**

2.1 Profitability and liquidity analysis

2.1.1 Profitability

Gross Profit Margin: The total trend of the change is approximately the same between Pfizer and Sinovac through 2019 to 2020. Pfizer’s margin has decreased about 17% from 2020 to 2021 which can be seen as an unexpected control over sale and price. The increasing investment in the vaccine for COVID-19 aggravated the cost burden that encourages Pfizer to focus on the selling strategy in order to make a better adjustment. Since Moderna developed later than the other two companies, there is no exact data to be listed in the graph below.

![Fig. 1 Gross Profit Margin](image1)

Return on Equity: Figure 2 presents that Pfizer had a good operation on profitability from 2019 to 2020 comparing to Moderna which indicated that Pfizer was not influenced largely by the pandemic. Although there is a huge difference of the 2021’s statistic, Pfizer still has a stable performance. But Sinovac also did a better job on vaccine sales which can be a threat to Pfizer.

![Fig. 2 Return on Equity](image2)

2.1.2 Liquidity

Current Ratio: The current ratio which represents the ability to pay the expense, the ratio of Pfizer remains relatively constant through 2019 and 2021 which is approximately between 1 to 1.5. The high statistic of Moderna in 2019 can be owing to COVID-19, and Sinovac remains a large financing reserve, but Pfizer did not suffer serious losses at the same time and still maintained a good balance of assets and liability.
After the overall analysis of profitability and liquidity, Pfizer did have a stable and constant operation after the outbreak of the pandemic comparing to the competitor. Even though the introduction of vaccine for COVID-19 generated considerable investment cost, Pfizer can still achieve a balance through the process of production and sales and made profit when others may suffer financial losses. Pfizer’s performance demonstrated the adaptability to crises and the sense of responsibility as a well-known pharmaceutical enterprise, however, since the gap is shortened with the increasingly normalized pandemic situation, Pfizer should adjust the strategy for vaccine in order to confront possible losses.

2.2 Revenue analysis

Table 1. Revenue impact of COVID-19 vaccine [11][12][13]

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$40.9B</td>
<td>$41.7B</td>
<td>$81.3B</td>
</tr>
<tr>
<td><strong>Pfizer Total</strong></td>
<td>0</td>
<td>$154M</td>
<td>$36.8B</td>
</tr>
<tr>
<td><strong>COVID-19 Vaccine of Pfizer</strong></td>
<td>0</td>
<td>$200M</td>
<td>$17.7B</td>
</tr>
<tr>
<td><strong>Moderna Total</strong></td>
<td>$246.1M</td>
<td>$510.6M</td>
<td>$19.4B</td>
</tr>
</tbody>
</table>

As shown in Table 1, from 2020 to 2021, compared with an increase of $0.8 billion in the previous year, the total revenue of Pfizer rose from $41.7 billion to $81.3 billion (a rising rate of 94.96%). Although Pfizer is an integrated pharmaceutical company with various research fields, the large increase of product sales is mainly caused by a large amount of COVID-19 vaccine orders at the national level. Among all significant product sales of Pfizer, the rising trend of COVID-19 vaccine and related alliance revenue is most evident, increasing from $154 million in 2020 to $36.8 billion in 2021 (a rising rate of 237.71%). From 2020 to 2021, Moderna Inc., Pfizer’s competitor on COVID-19 vaccine, also experienced a significant increase of product sales from $200 million to $17.7 billion (a rising rate of 8,738%). And from 2019 to 2021, product sales of Sinovac had risen by $19.2B (a rising rate of 77.9%) because pandemic had initially broken out in China in 2019. Therefore, COVID-19 vaccine was the major revenue driver of Pfizer and even pharmaceutical industry when other products are in lower demand caused by decreasing consuming power and closed drug stores during pandemic.
3. Competition Analysis

3.1 Patent Rights

<table>
<thead>
<tr>
<th>Product type (Available for use)</th>
<th>Product type (discovery/clinical)</th>
<th>Number of vaccine approval (countries/economies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer</td>
<td>1</td>
<td>111</td>
</tr>
<tr>
<td>Moderna</td>
<td>2</td>
<td>76</td>
</tr>
<tr>
<td>Sinovac</td>
<td>1</td>
<td>42</td>
</tr>
</tbody>
</table>

As shown in Table 2, Pfizer vaccine is most widely accepted by the globe, whereas Sinovac the least. This reflects the big differences of patent value based on market recognition to some extent. In terms of number of patents, Moderna’s is the highest both in development process and vaccine market, while the other companies are the same. This reflects Moderna has higher profit potential because Moderna is more likely to provide various products targeted at mutated virus and people at different age groups and physical condition.

Although there is an error between the vaccine efficacy rate in the clinical stage and that in actual use, the efficacy rate is over 90% for all companies mentioned in Table 2 [15]. Also, as patent is the most important asset for technology-based pharmaceutical industry and COVID-19 vaccine is the major revenue driver during the pandemic, all companies are aware of the risk of vaccine patent disruption. Besides, Pfizer plans to evaluate the short-term and long-term efficacy of current products for future production, manufacture vaccine candidates to prevent new variants and reduces the risk of collaborating with BioNTech [12]. Moderna also plans to manufacture vaccine candidates targeted at emerging variants like Omicron. And to enable healthcare providers to easier distribute and administer vaccine, Moderna plans to develop a potential refrigerator-stable mRNA vaccine [11].

3.2 Pfizer Vaccine Coverage Status

Throughout 2021, Pfizer and BioNTech became partners, and their jointly developed COVID-19 vaccines accounted for a significant share of the global COVID-19 vaccine market. And the partnership increases Pfizer's capacity to produce and sell COVID-19 vaccines. As of March 2022, Pfizer's COVID-19 vaccine market share grew to account for 70 percent of all doses administered in the United States and the European Union.

For the young and elderly, the Pfizer vaccine was extremely effective in preventing COVID-19, with 95.3% and 96.7% protection against COVID-19 infection as well as death at 7 days after the second dose, respectively; and 97.0% and 91.5% protection against symptomatic and asymptomatic infection, respectively. The vaccine was effective in preventing hospitalization and severe cases, with an overall protection rate of 97.2% for hospitalized cases and 97.5% for severe and critically ill hospitalized cases. Protection against COVID-19 infection increased to 96.5%, protection against hospitalization increased to 98.0%, and protection against death reached 98.1% within 14 days after the second dose of New Crown vaccine.

Pfizer Inc said on November 5th that its investigated-Covid-19 oral drug was formally submitted for FDA approval after clinical trial results showed it could reduce the risk of hospitalization and death in severely ill COVID-19 patients by 89%. As a result, Pfizer's market value rose by $268 million from Nov. 4.

3.3 Pfizer Sales Operation Strategy

The major turning point for Pfizer's vaccine business came in 2020 when the epidemic spread and the New Crown vaccine was developed in collaboration with BioNTech, which was one of the first vaccines to receive FDA emergency use authorization and Pfizer leapt to become the chief global producer of the New Crown vaccine.
Pfizer's reliance on the New Crown vaccine was high after the epidemic, with the vaccine accounting for nearly 80% of the total. But Pfizer has a huge drawback, that is, Pfizer in the star vaccine product layout mainly through the acquisition of access, vaccine independent research and development capabilities are weak. The shortcomings are so obvious that Pfizer chooses to make up for them by mergers and acquisitions as well as by cooperation, rather than strengthening its own R&D capabilities.

From the point of view of the operating income of the vaccine business, since 2021, thanks to the huge global demand for New Crown vaccines, the vaccine business revenue has surged, achieving $14.127 billion in revenue in the first half of the year, which is twice as much as the global vaccine business revenue in 2020. This shows the importance of New Crown vaccines to the current Pfizer vaccine business.

According to the company's annual report, the future of Pfizer's business strategy is focused on four areas, New Crown Vaccine, emerging markets, R&D division and marketing. In terms of the new crown vaccine, Pfizer will continue the development and production of the new crown series of vaccines to meet the demands of different types of people; in terms of emerging markets, for the rise of emerging markets, Pfizer plans to lay out in advance in emerging markets with better healthcare systems to avoid unnecessary losses; in terms of R&D, innovative and specialized products are the ultimate goal of Pfizer's R&D; in terms of markets, Pfizer will carry out related The layout of drugs and vaccines.

4. Expectations

4.1 Policies

As the COVID-19 epidemic has shown no signs of abating for a long time, and the symptoms of those infected after the virus mutated to Omicron are increasingly similar to those of ordinary fevers and colds. This has led some people to take COVID-19 less seriously. And as people take COVID-19 less seriously, policies to prevent and manage COVID-19 are becoming more relaxed. For example, the UK government announced that international passengers, regardless of whether they have been vaccinated against COVID-19, will not need to fill in Passenter Locator From and will not need to be quarantined when entering the UK after 4am on March 18, 2022. When the COVID-19 vaccine is no longer mandated by policy, demand for it will also decline. This has partly contributed to the rise in the number of people infected with COVID-19, but demand for COVID-19 vaccines was always going to fall due to policy inattention.

4.2 Technical Dispute

Pharmaceutical industry often has many lawsuits in terms of bad drugs which will do harm to the patients, but these lawsuits can also be caused by patents dispute which is closely related to technical innovation. Pfizer has long suffered from lawsuits, so that it accumulated abundant experience and adjusted strategy to overcome possible problems. Recently, Moderna sues Pfizer along with its partner BioNTech for patent infringement of the vaccine for Covid-19 which contains the technology of mRNA. At the same time, Moderna is under lawsuits by other two companies of the same patent issue of mRNA [16]. This technical dispute between Pfizer and Moderna may bring negative effects to public health since the development of mRNA technology will be constrained in order to avoid getting involved in lawsuits. Moreover, Moderna may not get expected results as Pfizer has a high public credence and dependence of vaccine and already generated considerable revenue from such activity, and Pfizer has reduced the occurrence of some litigation problems through the approach of acquisition which can also add value to research and development campaigns. The technology involved in the lawsuit has more relation to BioNTech, the collaboration between Pfizer and BioNTech may not be sustainable for a long time so the subsequent responsibility of Pfizer may be reduced. The litigation faced by Sinovac focuses more on the equity competition of investors rather
than technical dispute and due to the problems in the international recognition of vaccines, there will not be too much pressure of lawsuits in the short term.

4.3 Investment Judgement

Through the analyses above, Pfizer has a relatively high investment value among the enterprises. First of all, when the pharmaceutical industry was suffering from the outbreak of the pandemic, Pfizer still maintained stable operation with high revenue and stock value that can guarantee further research and development of vaccines. Secondly, the quality of the vaccine for COVID-19 is guaranteed to a certain extend and Pfizer has a high market acceptance comparing with other competitors, at the same time, Pfizer is trying to develop oral vaccines to adapt to the increasingly normalized epidemic situation in order to keep constant profit under the decreasing sales of common vaccines. Moreover, even in the face of patent disputes and not necessarily long-term collaboration of vaccine’s research and development, Pfizer still has sufficient capital and abundant experience to strengthen independent research and development capability and reduce the possible technical disputes through the approach like acquisition. Last but not least, Pfizer has strong bargaining power which can make it better grasp the opportunity and achieve further development.

5. Conclusion

In a bid to make an assessment of Pfizer’s operation after the introduction of Covid-19 vaccine, the fundamental analysis, competition analysis and expectations have been done in this paper. According to the results, Pfizer achieved good balance between assets and liabilities even during the tough period and also had good performance in profitability, which can be the result of high revenue generated by vaccine sales. In terms of competition, Pfizer vaccines’ relatively high efficiency of prevention made it be accepted worldwide comparing with other kinds of vaccines. However, in lack of independent research and development ability, Pfizer adopted to the method like acquisition to keep productivity of vaccine improvements. In addition, with the changes of people’s attitude towards epidemic along with the technical dispute, Pfizer will make more adjustments to maintain its leading place. There are some recommendations that Pfizer should take efforts in R&D more independently to reduce the reliance on collaboration and diminish the risk of dispute, furthermore, preparing well in face of the normalizing epidemic situation in order to avoid possible losses. To sum up, Pfizer sized up the situation and won a favor in the vaccine field with high responsiveness and adaptability which guarantee its investment value. A successful pharmaceutical enterprise needs to keep vitality in research and development to maintain long-term competitiveness.

References


