THE BUSINESS OF VACCINE$

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Project on Organization, Development, Education, and Research (PODER)

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Introduction

The Covid-19 pandemic has brought with it a profound economic, financial and care crisis at a global scale and has exacerbated the crisis of democratic systems of government. In the Latin American region, the measures that have been implemented to slow the spread of the virus and reduce contagion evidence profound existing inequalities.

We start from the idea that, in the present context, a majority of public decisions that affect people's wellbeing are captured by private actors (business, private capital, organized crime, armed forces). In particular, we have observed weakness or even dismantling of public services, which has severely impacted the most vulnerable groups, from lack of access to drinking water to shortages of medicines.

As a general premise, modern society is characterized by a body of institutions and laws that configure and balance the relationships between public power and private power, guaranteeing the exercise of various rights, among them environmental, social, labor, political, and property rights. (Sassen, 2013) One of the main problems in this idea is when individuals or organizations (public or private) use legal vacuums to form alliances that annul the separation between public power and private power. The result of this process is known as state capture and refers to institutional arrangements between private agents (companies, law firms, and financial intermediaries) and public agents (politicians and government officials) to impose their interests over the needs and rights of others. (International Bank for Reconstruction and Development, 2007) When a nation state is captured by an economic and political elite asymmetries of power are created that undermine economic competition and the distribution of wealth, harming the legitimacy of democratic systems and, as a result, raising the deficit in institutional capacity to regulate various economic activities. (Durand, 2016; Salter, 2014)

This is how governments and companies, in this context, first of health emergency and now of post-Covid recovery, are imposing on persons impossible choices "between contagion or hunger; dangerous work or unemployment, corporate bailouts or financial ruin, personal safety or public health." (Red-DESC, 2020) Our persp=ective on the actions of some companies shows that many have exercised pressure on governments to help some sectors reactivate sooner, while quarantine or social distancing measures remained in force for the rest of society. We have also observed how governments have agreed to accept one-sided contracts and clauses that protect companies' ability to impose prices on vaccines, medicines, and supplies to fight the pandemic; accept jurisdictions that have nothing to do with the purchasing country or the location of the producing company; and accept clauses that evade corporate accountability and liability in the event of breach of contract or harm caused by their products. (PODER, 2021a)

A lack of transparency and corporate accountability has been the norm throughout the pandemic. Here we are focusing PODER's work on the pandemic and in this case on the process of authorization, purchase, distribution, and access to vaccines in Mexico. The central question is who is or who are behind the vaccines being applied in Mexico. Following the metho-

dology developed by PODER over the last 12 years, corporate intelligence, follow the money, horizontal and vertical analysis, data analysis, and technology for transparency, we present the information we have documented on the lack of transparency in the process of authorization, purchase, and access to vaccines in Mexico; we also describe who are the companies that are obtaining public funds to vaccinate the Mexican population, and lastly we suggest some recommendations for governments and companies to respect the right to health and to neutralize mechanisms of corporate capture of the state that violate human rights and augment the inequalities seen in our society.

It is of vital importance to divulge information on public contracts and purchases of vaccines because concealing such information increases the risk of conflicts of interest, corruption, and lack of access to medicines, vaccines, and treatments, above all for the most vulnerable persons.

1. METHODOLOGY

In our research we used public and private sources of information on pharmaceutical companies (annual reports, reports to regulatory agencies, and information from databases and financial analysis). We also consulted public information on contracts, emergency use authorizations, clinical trials, and budgeting for the national vaccination strategy in Mexico obtained through the national transparency platform.
Finally, the global data on providers, purchase agreements, and developers was obtained through collaboration with UNICEF, updated as of 03/04/2022 and can be consulted on the "UNICEF Covid-19 Vaccine Market Dashboard" at the link https://www.unicef.org/supply/covid-19-vaccine-market-dashboard.

II Pandemic and vaccination strategy in Mexico

1. GLOBAL CONTEXT

The disease Covid-19 caused by the SARS-CoV-2 virus was first reported as an outbreak of atypical pneumonia by the Municipal Health Commission of Wuhan, Hubei Province, in the People's Republic of China, on December 31, 2019. In the next 30 days, the Chinese health authorities announced that the disease was caused by a novel coronavirus, and days later made the gene sequences of the virus public; the World Health Organization (WHO) published the first technical documents related to prevention and control of infectious diseases, criteria for laboratory testing, clinical management, testing capabilities of healthcare systems, and travel advisories; the first contagions of persons who had visited Wuhan were reported in Thailand, Japan, the United States, France, and the United Arab Emirates; the WHO convened two sessions of the Emergency Committee (as established in the International Sanitary Regulations for 2005), and finally, on January 30, 2020, reached a consensus that the outbreak constituted a public health emergency of international importance, stating that by that time there were 98 recorded cases in 18 countries outside China and tests of community transmission in Germany, Japan, the United States, and Vietnam. (World Health Organization, 2021)

Before Covid-19 was classified as a pandemic, the WHO intervened in different spaces to issue a call to action to "stop, contain, control, slow, and reduce the impact of the virus at every opportunity" (World Health Organization, 2020) among its member countries and various organizations with global reach. First, it published the Strategic Preparation and Response Plan, which provided recommendations regarding what was known about the disease at the time and to boost capacity for detection and strengthen healthcare systems. Also, it conducted a joint mission with China to gather information in situ on the outbreak of the disease and its spread, and convened a research and innovation forum to discuss, among other topics, the origin, evolution, and transmission of the virus. Finally, on March 11, 2020, WHO Director General Doctor Tedros Adhanom Ghebreyesus declared that there was sufficient evidence to classify Covid-19 as a pandemic because it was a virus with high capacity for transmission that could produce a serious disease capable of causing death in infected persons and emphasized that countries' inaction on containing the spread of the virus would affect all sectors in which humanity is involved. (World Health Organization, 2021)

Global data on the number of confirmed cases of Covid-19, the number of persons who have lost their lives, and the number of persons vaccinated are not centralized. However, tracking information based on open data from different governments and disease control and research centers provides a means of approaching the impact Covid-19 has had on public health. The Coronavirus Resource Center at John Hopkins University in the USA estimates that as of May 13, 2022, 520,223,903 positive cases of Covid-19 have been detected in the world, 6,260,868 persons have died from the disease, and 11,395,578,347 vaccine doses have been applied. (John Hopkins University & Medicine, undated) These data are similar to those reported on the Oxford University platform and by the WHO. (World Health Organization, undated; Ritchie et al., 2020)

On the other hand, on May 5, 2022, the WHO announced its estimate of excess mortality related to Covid-19, finding that between 2020 and 2021 there were 14.9 million deaths associated with the pandemic. The excess mortality is obtained from the difference between the number of deaths caused by Covid-19 and the number expected in the absence of the pandemic; the methodology considers deaths directly related to Covid-19 and indirect deaths related to diseases in which persons lacked access to detection and treatment due to the collapse of healthcare systems. The WHO reported that the excess of deaths were concentrated in Southeast Asia, Europe, and America, confirmed that the number of deaths is greater in men than in women and that indices of mortality increase with age. It also argued that the difficulty of obtaining constant data on the evolution of the pandemic in countries is a reflection of the fact that there are not strong and transparent information systems to address this public health crisis. (World Health Organization, 2022a)

Finally, it is important to emphasize that the pandemic has been a catalyst for increased inequality between countries and populations, under a persistent financial structure where global policy decisions help the wealthiest persons increase their fortunes and create a crisis of rights for the poorest persons. The pandemic has made it more evident than ever that poverty limits people's access to detection and treatment of diseases. In its report on inequality, OXFAM mentions that more than 160 million persons have fallen into poverty and almost 17 million have lost their lives due to Covid-19 (OXFAM, 2022). In this context, the clear winners in the pandemic have been the large pharmaceutical companies that dominate the market for sales of medicines, diagnosis, and treatment. In the words of one of these large companies "in 2021, the established markets saw median growth of income of 6.4% and emerging markets grew 11.9%. The United States, Japan, China, Germany, and France are the five largest pharmaceutical markets in terms of sales in 2021. In 2021, the USA had 46.8% of global sales (2020: 46.8%; 2019: 46.5%)." (AstraZeneca, 2021, p. 9)

2. THE COVID-19 PANDEMIC IN MEXICO

The pandemic in Mexico started in February 2020 with the detection of the first case and to date more than 6 million positive cases of Covid-19 and 338,426 deaths from the disease have been reported . (Mexican Government, 2022b)

At the start of the pandemic the Ministry of Health analyzed it in 3 phases:

PHASE 1, Importation of the virus, started with the detection of the first recorded case of Covid-19 in Mexico on February 27, 2020, a man aged 35 years who had traveled to Italy (El Economista, 2020); persons who developed the disease in this period traveled abroad, where they acquired the virus. Also, the first death was recorded on March 18, 2020, another man aged 41 years who had diabetes. (Animal Político, 2020).

PHASE 2, Community contagion, started with the National Social Distancing Campaign; contagion is from person to person, regardless of whether or not they had left the country. For the first time there was nationwide dissemination of information on basic preventive measures, including hand washing, covering the mouth and nose when coughing or sneezing, social distancing, sanitary filters, and masking. (Ministry of Health, 2020) Also, non-essential activities and schools were shut down as well as

others that do not affect the core activities of organizations, whether public or private; as part of this policy the government later published a list of 41 economic activities classified as essential, which included everything related to the production and distribution of medical supplies; activities related to public safety, legislative activities and tax collection; energy, food, and transport industries; and mining. (Mexican Government, 2022c) Finally, official policy emphasized the importance of caring for vulnerable groups, persons ages 60 years or older, and persons with any disease.

PHASE 3, Epidemic contagion, started 21 days after the government published the Resolution Declaring the Covid-19 epidemic caused by the SARS-CoV2 virus a Sanitary Emergency due to causes of force majeure on March 30, 2020, with cases numbering in the thousands, regional outbreaks, and the disease spreading throughout Mexican territory. (General Council on Health, 2020) The resolution states that the Ministry of Health will determine all actions that prove necessary to address the expected emergency. Later, authorities announced the strategy for reopening social, educational, and economic activities, the "New Normalcy," including the implementation of a regional pandemic traffic light, based on 4 risk levels (red – maximum sanitary alert, orange – high risk, yellow –intermediate risk, and green – ordinary risk) and the permissiveness of 5 activities: health measures, work, public spaces, vulnerable persons, and students. (Mexican Government, 2020a)

Ilustration 1: What happens in each phase of the Covid-19 contingency?

Source: (Instituto Nacional de Salud Pública, 2022)

On April 26, 2022, in the press conference *El Pulso de la Salud* (The Pulse of Health), Under-Minister for Prevention and Health Promotion Hugo Lopez-Gatell affirmed "although it is still pending formalization by the WHO, we can confirm that in Mexico we are closing the epidemic cycle and transitioning into the endemic state," possibly marking the end of the pandemic in Mexico. (Office of the President, 2022a)

3. VACCINATION AGAINST THE SARS-COV-2 VIRUS FOR THE PREVENTION OF COVID-19 IN MEXICO

The National Covid-19 Vaccination Campaign in Mexico started on December 24, 2020, immediately after receiving the first cargo of vaccines acquired under a contract between the Mexican government and the pharmaceutical company Pfizer, (Pfizer Export B.V. & Ministry of Health, 2020); before that, the Federal Commission for Protection against Sanitary Risks (Cofepris) had issued emergency use authorization for this vaccine on December 11, 2020; to date, it is the only emergency use authorization to have been amended for application in persons 12 years and older (COFEPRIS, 2020). The Ministry of Foreign Affairs (SRE) transparency portal reports that the Mexican government has signed 7 contracts for acquisition of Covid-19 vaccines, for a total of 243.93 million doses contracted: 77.4 million doses of Vaxzevria (AstraZeneca / United Kingdom), 2.03 million doses of Covishield (Serum Institute of India/India), 34.4 million doses of Comirnaty (Pfizer/United States), 35 million doses of Ad5-nCOV (CanSino Biologicals/China), 24 million doses of Sputnik V (Gamaleya Research Institute/Russia), and 20 million doses of Coronavac (Sinovac/China) and one more with the international vaccine acquisition mechanism COVAX, for the acquisition of 51.1 million doses (Ministry of Foreign Affairs, 2021); this contracting mechanism contemplates centralized purchasing of vaccines from various pharmaceutical companies, with the aim of securing vaccines for 20% of the population in each participating country (Mexican government, 2020d). On the other hand, the Covid-19 Vaccine Market Dashboard of the United Nations Children's Fund (UNICEF, 2022) reports that Mexico has formalized contracts to purchase an additional 42 million doses, which are not reported on the SRE transparency platform; the figures are: 8 million doses of Sputnik V/BIRMEX, 22 million doses of Janssen Pharmaceutical, and 12 million doses of Sinopharm. (UNICEF, 2022)

On the delivery of doses under signed purchase agreements, Mexico has received more than 100% of its doses from Pfizer, due to an amendment to the original contract (Pfizer Export B.V. & Ministry of Health, 2020), 100% from Sinovac, 94% from AstraZeneca, 83% from Sputnik V, 44% from Serum Institute of India, 40% from Cansino, and 13% from the COVAX mechanism, for a total of 177.8 million doses delivered, based on data consulted on May 2, 2022, on the website Gestión Diplomática de Vacunas Covid (Diplomatic Procurement of Covid Vaccines) (Ministry of Foreign Affairs, 2021) and January 28, 2022, on the website Covid-19 Vaccine Market Dashboard (UNICEF, 2022). In addition, Mexico has received a total of 17.1 million vaccines through donations: 9.4 million doses of AstraZeneca, 1.4 million doses of Janssen Pharmaceutical, and 6.3 million doses of Moderna, all from the US government. (Ministry of Foreign Affairs, 2021) Also, the laboratories Liomont and Drugmex have received a total of 33.8 million [doses] of active substance for packaging of the AstraZeneca and Cansino vaccines respectively. (Ministry of Foreign Affairs, 2021) No records were found of additional con-

tracts for active substances or data that allow us to confirm how many of those doses, once packaged, were delivered to Mexico as part of the contracts signed between the pharmaceutical companies and the Mexican government.

Through May 3, 2022, Mexico had applied 205,507,650 vaccine doses, 152,639,867 in primary protocols and 52,867,783 in booster doses, achieving 91% coverage of persons 18 years of age and over and 55% of persons between 14 and 17, with at least one dose. (Office of the President, 2022b)

From the start of the vaccination campaign, Mexico opted to prioritize vaccination of the highest risk and most vulnerable sectors of the population; in this order of importance, first doses and boosters have been given to front line healthcare personnel caring for Covid-19 patients (approximately 1.1 million persons), the population age 50 years and over (approximately 27 million persons), pregnant women over age 18 (approximately 2 million persons), teachers, persons ages 18 to 49 (approximately 61 million persons), persons ages 12 to 17 living with comorbidities, and persons ages 15 to 17 in general (Mexican government, 2022a). With the aim of reaching the entire population and achieving total coverage, the government designed the strategy Operativo Correcaminos, (Operation Roadrunner), which is coordinated by the president and 32 state sub-coordinators designated by the Minister of Health; the org chart contemplates the participation of different federal agencies to coordinate the management and distribution of vaccines (Foreign Affairs and Treasury), sanitary regulation and control (Health and Cofepris), management of records and information (CONACYT), field organization (Bienestar), logistics (INSABI, SEDENA, and SEMAR) and application of vaccines (Health, INSABI, IMSS, ISSSTE, PEMEX, SEDENA, and SEMAR). (Mexican government, 2021b)

TABLE 1: Contracts, deliveries, and donation of vaccines applied in Mexico

Vaccine - Company (emergency authorization use date)	Millions doses for contract [1]	Millions doses delivered [1] [2]	Millions doses delivered by COVAX * [2]	Millions doses delivered by donation [1]	Millions units of active substance delivered [1]	Millions doses deivered (Total by company)
Vaxzevria - AstraZenec (04/01/21)	77.4	72.6	5.5	9.4	-	87.5
Covishield - Serum Institute of India (-)	2.03	0.9	-	-	-	0.9
Comirnaty - Pfizer BioNTech (11/12/20)	34.4	50.2	1.0	-	-	51.2
Ad5-nCOV - CanSino Biologicals (09/02/21)	35.0	14.1	-	-	-	14.1
Sputnik V - Gamaleya Research Institute (03/02/21)	24.0	20.0	-	-	-	20.0
Coronavac - Sinovac (10/02/21)	20.0	20.0	-	-	-	20.0
Ad26.COV 2.S - Janssen Pharmaceuticals (27/05/21)	-	-	-	1.4	-	1.4
Spikevax - Moderna (10/08/21	-	-	-	6.3	-	6.3
TOTAL	192.83 243.93 (COVAX included)	177.8	6.5	17.1	-	201.4
Vaxzevria – Laboratorios Liomont	-	-	-	-	25.8	25.8
(25/05/21)						
Ad5-nCOV - Drugmex (22/03/21)	-	-	-	-	8.0	8.0
TOTAL	-	-	-	-	33.8	33.8

Source: prepared by the authors with sources: (Ministry of Foreign Affairs, 2021; UNICEF, 2022)
[*] COVAX is the vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator, where Mexico secured 51.1 million doses.

4. LACK OF TRANSPARENCY AND CORPORATE CAPTURE IN CONTRACTS FOR ACQUISITION OF VACCINES IN MEXICO

In states captured by economic elites and corporate interests, information circulates freely between companies and government but citizen access is limited. Therefore, it is important to advance in the transparency of public information that could be benefiting companies, in this case the global pharmaceutical industry, to the detriment of the human rights of health and life.

Using the la national transparency platform and the tool Requests for Access to Information of the National Institute of Access to Information (INAI)[1] we requested public information from the agencies responsible for negotiating for vaccines, signing and paying contracts, and sanitary authorization of products.

We requested information on contracts, results of clinical trials conducted in Mexico, the budget for procurement of vaccines, and technical studies and resolutions on emergency use authorizations. Initially all this information was reserved; we then initiated a procedure to challenge this first response and the INAI largely revoked it and compelled the institutions to make the information on contracts and budget funds for vaccine procurement available to the public. Thus, we obtained the purchase agreements for the Pfizer, Astra Zeneca, Covax, Sinovac, and Cansino vaccines. The information on the contract for acquisition of Sputnik V has not yet been made public.

The information on phase 3 clinical trials conducted in Mexico and documents on emergency use authorizations have not been published despite the INAI's ordering their release, on the grounds that they compromise national security. (PODER, 2021e) At present there are 4 cases before the Supreme Court awaiting judgments because the government claims that publishing the information undermines national security.

Below we present a breakdown of the requests for information made and their current status:

Between January and August 2021, PODER submitted seventy-two requests through the INAI transparency platform for access to information from different government agencies involved in the official response to the health crisis caused by Covid-19.

Ministry of Health (SSA) responsible for coordinating all aspects of pandemic response including agreements for acquisition of vaccines; we submitted a total of 10 requests for access to information, filed 2 appeals, and sent affidavits as interested third party on 2 appeals of rulings denying access for reasons of national security entered before the Supreme Court:

[1] http://www.plataformadetransparencia.org.mx/

- 5 requests for information on contracts or agreements between pharmaceutical companies / mechanisms and the Mexican government for Pfizer vaccines (folio: 0001200015821), AstraZeneca (included in folio: 0001200015821), Cansino (included in folio: 0001200015821), Sputnik V (folio: 0001200040921), Sinovac (folio: 0001200111221), Serum Institute of India (folio: 0001200083321), and the COVAX Mechanism (included in folios: 0001200015821 and 0001200083321). At present, the public versions of the contracts with Pfizer, AstraZeneca, Cansino, Sinovac, and the COVAX Mechanism are available but not the contracts with Sputnik V and Serum Institute of India (AstraZeneca), for which reason 2 more requests for information were submitted to obtain the public versions (folios: 0001200330221 and 0001200330321, respectively), to which the SSA responded that the information is confidential, classified, and reserved for 5 years. Due to the lack of information in the replies issued by the SSA, in its first requests on contracts with Sputnik V and Serum Institute of India, PODER filed the corresponding appeals with the INAI (files: RRA 4034/21 and RRA 4932/21, respectively), in response to which the INAI ordered that the response be amended, a situation that led the President's Office of Legal Counsel to file an appeal claiming national security (files: 09/2021 and 08/2021, respectively) with the Supreme Court. As of May 9, 2022, the court had admitted the appeal, admitted PODER's affidavit as interested third party, and referred the matter to Minister Jorge Mario Pardo Rebolledo and we are waiting for the case to be listed to be heard before the Plenum;

- 2 requests for information on contracts or agreements between the laboratories that finished the packaging process in Mexico and the Mexican government for vaccines from AstraZeneca with Laboratorios Liomont (folio: 0001200415521), Cansino with Drugmex (folio: 0001200415621), and Sputnik V with Birmex (folio: 0001200415721), to which the SSA responded that it found no relevant information;

- 2 requests for information on agreements between the governments of Mexico and the United States for donation of vaccines from AstraZeneca (folio: 0001200415421), Moderna (included in folio: 0001200415421), and Janssen (folio: 0001200415321), to which the SSA responded that the information is reserved for 5 years;

- 1 request for information on Mexican government budget spending to purchase vaccines from Pfizer, AstraZeneca, CanSino, Sputnik V, Sinovac, and Serum Institute of India (folio: 0001200111521), to which the SSA responded that the information requested was not at that level of detail and referred to the links of the Classifier by Spending Item for the Federal Public Administration and open budget data.

- Federal Commission for Protection against Sanitary Risks (Cofepris), charged with receiving, analyzing, and evaluating clinical studies of vaccines intended to be applied in Mexico; a total of 17 requests for access to information were submitted, a total of 7 appeals were filed with the INAI, and an affidavit as interested third party in an appeal on matters of national security pending before the Supreme Court was presented: 2 requests for information on phase 3 studies conducted in Mexico on vaccines from Cansino (folio: 1215100039121), Janssen (included

in folio: 1215100039121), and Sputnik V (folio: 1215100039221). Due to the lack of response from the Cofepris, PODER entered the corresponding appeals with the INAI (files: RRA 2810/21 and RRA 2811/21), the Cofepris responded that the requests will be addressed when the sanitary risks to which public officials are exposed are minimized; to date, May 9, 2022, no amendment to the response has been received;

- 7 requests for information on the process of Emergency Use Authorization for the vaccines from Pfizer (folio: 1215100039021), AstraZeneca (included in folio: 1215100039021), Cansino (folio: 1215100065321, 1215100175621), Sputnik V (folio: 1215100123221), Sinovac (included in folio: 1215100175621), Janssen (folio: 1215100566821), Moderna (folio: 1215100999421), and Sinopharm (folio: 1215100305421). Subsequently, the Cofepris responded withholding the information for reasons of confidentiality and reserving it for reasons of national security; this response came only after PODER entered the corresponding appeals with the INAI (files: RRA 2812/21, RRA 2809/21, RRA 4616/21, and RRA 4617/21, excepting the cases of Janssen and Moderna). In the cases of the Pfizer, AstraZeneca, Cansino, Sputnik V, and Sinovac vaccines, the INAI declared the procedure completed with that response. In the case of Sinopharm (file: RRA 6683/21), the INAI ordered that the response be amended, a situation that led the President's Office of Legal Counsel to enter an appeal for reasons of national security (file: 08/2021) before the Supreme Court. As of May 9, 2022, the court had admitted the appeal, admitted PODER's affidavit as interested third party, and referred the matter to Minister Jorge Mario Pardo Rebolledo and we are waiting for the case to be listed to be heard before the Plenum;

- 8 requests for information on the process of Emergency Use Authorization in its public versions for the vaccines Pfizer (folio: 1215100707221), AstraZeneca (folio: 1215100707321), Cansino (folio: 1215100707521), Sputnik V (folio: 1215100707621), Sinovac (folio: 1215100707721), Janssen (folio: 1215100707921), Moderna (folio: 1215100999421), and Sinopharm (folio: 1215100999521). The Cofepris's response was that the information is reserved for reasons of national security.

- Also, 10 more requests for information have been presented to the following agencies:

- 4 to the Ministry of Finance and Public Credit (SHCP) on public budget spending on acquisition of vaccines (folios: 0000600006321, 0000600019721, 0000600040921, and 0000600118021), to which the agency responded that the entity responsible for budget spending in this area is the SSA.

- 5 to the Ministry of Foreign Affairs (SRE) on contracts or agreements for purchase of vaccines (folios: 0000500006521, 0000500019121, 0000500034121, 0000500045621, and 0000500069521), to which the agency responded that the entity responsible for signing contracts between pharmaceutical companies and the Mexican government for acquisition of vaccines is the SSA.

- 1 to the Institute of Health for Wellbeing (INSABI) on budget allocations destined to the "Covid-19 Immunization Program" or "National Vaccination Strategy"(folio: 1238000030621), to which the institute responded that the information was classified as reserved.

a) Information on contracts

At present, public versions of 5 contracts between pharmaceutical companies, the COVAX mechanism, and the Mexican government are available. All the contracts were requested by means of requests for access to information without receiving a favorable response; however, because the information in question is in the public interest the INAI released the public versions with restrictions of confidentiality and reservation of data.

AstraZeneca

On October 12, 2020, AstraZeneca signed a contract with the Mexican government for 77.4 million doses (Mexican government, 2020b), for which Mexico paid 309 million dollars. (PODER, 2021b). It is the contract with the largest number of secured doses. On January 4, 2021, the vaccine received emergency use authorization from Cofepris. The contract, which does not mention partnership with the Carlos Slim Foundation, states that the Mexican organization will support the production and distribution of the vaccine in Latin American countries with the collaboration of the laboratories mAbxience of Argentina and Liomont of Mexico. (AstraZeneca Mexico, 2020). The contract mentions the criteria for defective products, product safety, product recall, and after market risk management and safety studies.

Pfizer

On November 30, 2020, Pfizer signed a contract with the Mexican government for 34.4 million doses (Mexican government, 2020e) and on December 11, 2020, received emergency use authorization from the Cofepris. The vaccine will be made in the United States, Belgium, and Germany, and the contract includes an anticorruption clause affirming that no payments were made to public officials to close the deal. Mexico assumes all taxes, and data on quality tests, price, and delivery schedule is redacted in the contract. (Pfizer Export B.V. & Ministry of Health, 2020)

Pfizer Export B.V. is a subsidiary of Pfizer Inc. and is based in The Netherlands. Under this agreement, the money to pay for the vaccines comes from the sub-account for the Health for Wellbeing Fund. It specifically cites Transitory Article Ten, second paragraph, of the Decree amending, adding, and derogating sundry provisions of the General Law on Healthcare and the Law on the National Institutes of Health, which was published November 29, 2019, which are subject to the legal instruments established between the Ministry of Health and the Institute of Health for Wellbeing (INSABI).
This agreement, which is the only one available for consultation in its public version, states that they undertake to sell Mexico 34,399,950 doses of the vaccine. To date (March 9, 2022), Mexico has received 51,433,395 Pfizer-BioNtech vaccines. (Ministry of Foreign Affairs, 2021).

Cansino
On December 8, 2020, CanSino Biologics Inc. signed a contract with the Mexican government for 35 million doses of the Ad5-nCov vaccine. The contract specifies that itis LATAM Pharma that would name an affiliate as its representative to manage production (filling and finishing) from bulk product to finished product, including obtaining the necessary approvals for the product in the territory (Mexican government, 2020c). On March 22, 2021, it received emergency use authorization from the Cofepris. Part of the doses contracted will be packaged in Mexico by the laboratory Drugmex. Payment was made through an INSABI subaccount which has federal budget funds and the confidentiality clause is for the duration of the agreement, in other words through the date of the last delivery, plus 10 years with a sanction of 50 thousand USD for each datum divulged plus compensation for damages. In the contract, the information on payment and prices was redacted by the responsible authority.

COVAX
On September 18, 2021, COVAX signed a contract with the Mexican government for 51.5 million doses, for which Mexico paid 159.8 million dollars, equivalent to 3.1 dollars per dose. (Mexican government, 2020d). The mechanism permits purchase of the number of doses necessary to immunize 20% of the population of the participating countries. It is the only contract that did not require confidentiality clauses, while requiring payment of a 20.6 million dollar shared risk guarantee, giving COVAX the right to withdraw the offer. The mechanism was launched by the WHO and the Gavi Vaccine Alliance; the latter party will be charged with offering purchase opportunities to participants and it is clarified that the terms of such purchase opportunities are nonnegotiable; Mexico may withdraw from the purchase for reasons of price or type of vaccine, provided it give notice in the time required, and Mexico undertakes to provide the manufacturer a contract for the acquisition and delivery of the vaccines.

SINOVAC
On February 4, 2021, the Mexican Ministry of Health, through Minister of Health Jorge Alcocer Varela, and the company Sinovac Life Sciences Co. Ltd., an affiliate of the company Sinovac Biotech Ltd., through its CEO Qiang Gao, signed a purchase and supply agreement to obtain 10 million doses of the CoronaVac vaccine. Also, on March 12, 2021, a complementary agreement was signed for a further 10 million doses. The document states that the unit price and all information related to it will be kept confidential and not be divulged to any third party without Sinovac's prior, written consent. The delivery schedules, the article on complaints, and all the appendices are also redacted. The agreement has an anticorruption clause and in case of disputes they are to be submitted to the Singapore International Arbitration Center. (Mexican government, 2021a) According to the Ministry of Foreign Affairs (SRE) transparency platform, as of March 9, 2022, Mexico had received the 20 million doses provided for in the contract.

The findings on contracts released in their public versions described above were analyzed and published by PODER. (PODER, 2021c, 2021d). We observed that all the pharmaceutical companies asked to reserve information on their contracts. In Mexico that violates Articles 70.XXVII and 70.XXVIII of the General Law on Transparency

and Access to Information and therefore the government has been violating the right to information established in Article 6 of the Constitution. This is not an isolated behavior on the part of the Mexican government; in countries with weak institutions and permeable to corporate capture, companies leverage their power to impose their terms. Under corporate pressure, 13 countries in Latin America amended laws to purchase Covid-19 vaccines between September and February 2021. (Ruiz et al., 2021)

Based on the report released by the Federal Bureau of Audits (ASF) detailing aspects of Mexico's purchase of the AztraZeneca and Pfizer- BioNTech vaccines through the CENSIA, (ASF, 2020) it is recommended that reports and evidence be presented to assess compliance with the obligations assumed. It also states that the CENSIA lacked clear guidelines to exercise control and supervision of the funds allocated to purchase these vaccines, which, according to the report, amounted to 2.6276138 billion pesos.

As regards the administration of these funds as a result of the ASF findings, the report states that "[for] vaccine doses for which part of the cost was covered with funds from fiscal year 2020, the Ministry of Health and the CENSIA lacked complete, up-to-date, and reliable information in their systems "Environment for administration and management in healthcare" (AAMATES) and the CVCovid system, nor did they have complete information on the total vaccines received and distributed. In addition, deficiencies were detected in the implementation of controls and mechanisms for data security in those systems, as a result of which it is impossible to ensure the integrity and availability of information on vaccine eligible and vaccinated persons" (ASF, 2020, p. 41). Also, the different federal agencies have concealed information on the public funds used to purchase vaccines, making it impossible to ascertain how much money from the public budget was used to purchase vaccines and supplies for the National Vaccination Strategy and how much money each company received for doses delivered to Mexico. On analyzing the contracts, we find that it is the companies that have asked to conceal the information. This is a common mechanism of corporate capture they have used to continue negotiating the price of doses and terms of contracting with the highest bidders, which has contributed to the phenomenon of vaccine stockpiling in the wealthiest countries. It is vitally important to examine information on contracts and public and private financing for the development and acquisition of vaccines, because concealing such information increases the risk of conflicts of interest and corruption.

We know that vaccines are one of the most valuable means of combating and ending the pandemic but to achieve that it is important that there be synergy between government and the citizenry so that information can flow and the process and advances in the largest mass vaccination campaign in history can be monitored. With the scant information the Mexican government has shared we have no way of knowing how we are doing in the process of vaccination or the criteria on which the authorities are making their decisions.

For those of us who have decided to get vaccinated and in the face of intense campaigns in media and on social networks to spread misinformation on the safety and efficacy of vaccines, it is crucial that government and pharmaceutical companies

make the technical information from clinical trials and emergency use authorizations for vaccines public. Reserving such information shows how, in emergencies, companies take advantage of governments' weakness to impose their rules, maximize profits, and place their earnings above the human rights to health and life.

In states captured by private interests, information circulates freely between government and companies but is concealed from private citizens heightening preexisting inequalities and undermining the rights of all.

III Who are the companies that produce the vaccines used in Mexico?

1. ASTRAZENECA PCL

a) General information

AstraZeneca PLC is a biopharmaceutical company that focuses on discovery, development, manufacture, and marketing of prescription medicines. The company serves primary and specialized care physicians through distributors and local representative offices in the United Kingdom, the rest of Europe, the Americas, Asia, Africa, and Australasia. The company was formerly known as Zeneca Group PLC and changed its name to AstraZeneca PLC in April 1999. AstraZeneca PLC was founded in 1992 and has its main office in Cambridge, United Kingdom.

AstraZeneca PLC was incorporated in England and Wales on June 17, 1992, under the Companies Act of 1985. It is a joint stock company domiciled in the United Kingdom. The company's registration number is 2723534 and its main office is located at 1 Francis Crick Avenue, Cambridge Biomedical Campus, Cambridge CB2 0AA, United Kingdom (Tel: +44 (0)20 3749 5000). From February 1993 to April 1999, the company was named Zeneca Group PLC. On April 6, 1999, the company changed its name to AstraZeneca PLC. The company was formed when the pharmaceutical, agrochemical, and specialized chemical products businesses of Imperial Chemical Industries PLC split up in 1993. In 1999, the company sold the specialized chemical products business. Also in 1999, the company merged with Astra of Sweden. In the year 2000, the agrochemical business was spun off and merged with the similar business in Novartis to form a new company called Syngenta AG. In 2007, the group acquired MedImmune, a biological products and vaccines business based in the United States. In 2021, the group acquired Alexion, a rare diseases company based in the United States. In 1999, in relation to the merger of Astra and Zeneca, the company's capital stock was redenominated in US dollars. (AstraZeneca PLC, 2022b, p. 12). It presently has 83,100 employees. (AstraZeneca

b) Corporate structure

AstraZeneca PLC operates in more than 100 countries[2] and has 31 manufacturing plants in 18 countries. The company has 9 R&D centers in 5 countries, among them Cambridge in the United Kingdom, Gaithersburg in the USA, and Gothenburg in Sweden. In Mexico it has corporate offices in the nation's capital; a technology center in Guadalajara; and the Lomas Verdes manufacturing plant in Naucalpan, State of Mexico, which produces 25 million medicine units yearly. (AstraZeneca Mexico, undated). The main corporate groups the company controls 100% are:

TABLE 2: Main corporate groups controlled by AstraZeneca PLC

Company	Country	Percentage of voting share capital held
Alexion Pharmaceuticals, Inc.	United States	100
Alexion Pharma International Operations Unlimited Company	Ireland	100
AstraZeneca AB	Sweden	100
AstraZeneca Biotech AB	Sweden	100
AstraZeneca Dunkerque Production SCS	France	100
AstraZeneca Finance and Holdings, Inc.	United States	100
AstraZeneca Intermediate Holdings Limited	England	100
AstraZeneca Pharmaceuticals Co., Limited	China	100
AstraZeneca Pharmaceutical (China) Co. Limited	China	100
AstraZeneca Treasury Limited	England	100
AstraZeneca UK Limited	England	100
AstraZeneca (Wuxi) Trading Co. Ltd	China	100
IPR Pharmaceuticals, Inc.	Puerto Rico	100
KuDOS Pharmaceuticals Limited	United Kingdom	100
MedImmune, LLC	United States	100

Source: prepared by the authors with data from https://www.sec.gov/Archives/edgar/data/0000901832/000110465922025720/azn-20211231xex8d1.htm

c) Financial structure

Financial information

In 2021, product sales grew 41% to 36.541 billion dollars (2020: 25.890 billion dollars; 2019: 23.565 billion dollars), including revenues from the Covid-19 Vaccine. Product sales, excluding vaccines, grew 26% (24% as reported by the CER) to 32.624 billion dollars. After the company closed the acquisition of Alexion on July 21, 2021, medicines for rare diseases generated 3.070 billion dollars, with 8% growth (CER: 9%) and contributed 8% of AstraZeneca's total product sales. (AstraZeneca PLC, 2022b, p. 26)

The company's total revenues, including product sales and income from collaborations, grew 41% (38% as reported by the CER) to 37.417 billion dollars. (AstraZeneca, 2021, p. 14)

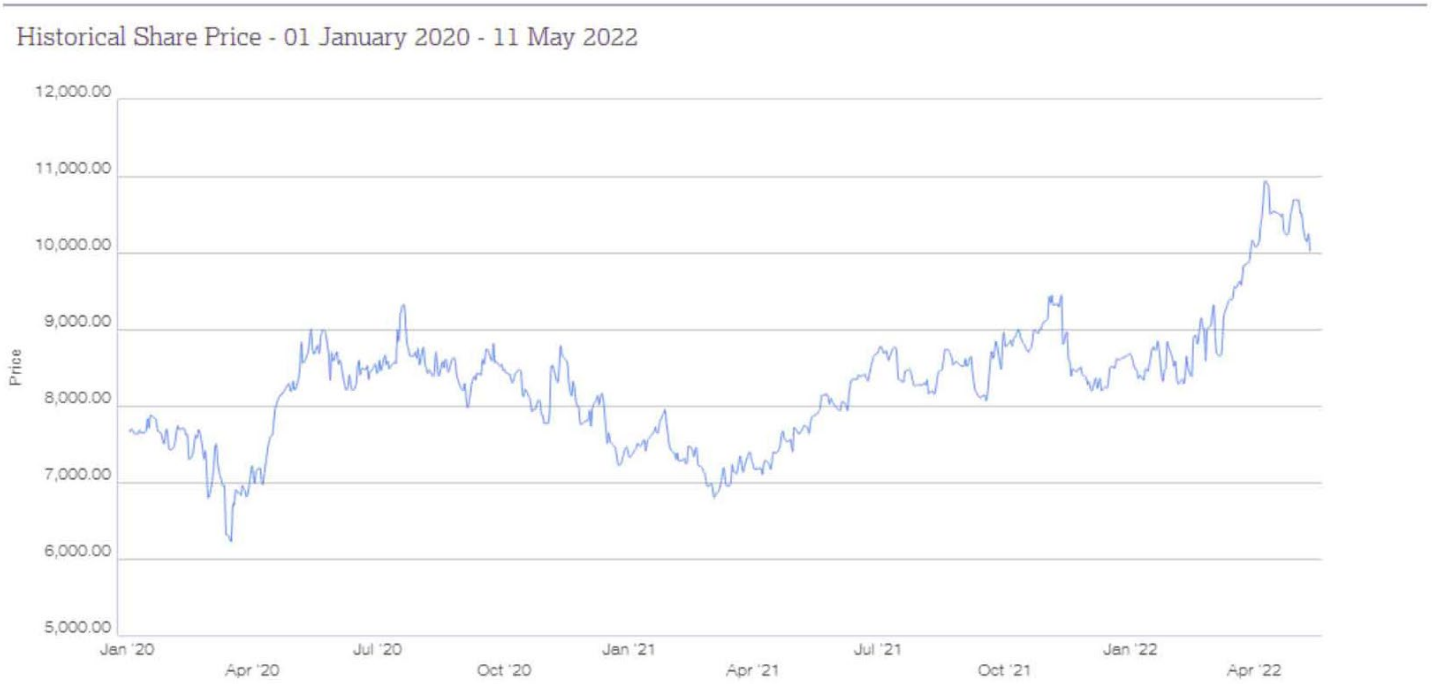
[2] See Annex: Subsidiaries of AstraZeneca PLC

With regard to products related to Covid-19, the company reports sales of its vaccine Vaxsevria and its treatment Evusheld. Sales of Vaxzevria in emerging markets totaled 2.24 billion dollars and accounted for 57% of total Vaxzevria sales. Sales of Evusheld in the same markets were 19 million dollars. Sales of Vaxzevria in the USA were 64 million dollars. Sales of Vaxzevria in Europe were 1.035 billion dollars and 66 million for Evusheld. As shown in the graph below, the company's share price has risen in recent years.

ILUSTRATION 2: AstraZeneca historical share prices 2020 – 2022

AstraZeneca

Share price download



Source: https://irs.tools.investis.com/Clients/uk/astrazeneca_lse/SharePriceLookup/Default.html?culture=en-GB

Main shareholders

The main shareholder of AstraZeneca PLC is Blackrock, Inc., the world's largest fund manager, with a total of 138,932,422 shares representing 9% of the total. (AstraZeneca PLC, 2022a)

TABLE 3: AstraZeneca PLC main shareholders

BlackRock, Inc.	AstraZeneca PLC	Traditional Investment Managers	9
Capital Research and Management Company	AstraZeneca PLC	Traditional Investment Managers	4.12
Wellington Management Group LLP	AstraZeneca PLC	Traditional Investment Managers	4.23
The Vanguard Group, Inc.	AstraZeneca PLC	Traditional Investment Managers	4.21
Investor AB (publ)	AstraZeneca PLC	VC/PE Firms (<5% stake)	3.33
T. Rowe Price Group Inc.	AstraZeneca PLC	Traditional Investment Managers	2.93
Norges Bank Investment Management	AstraZeneca PLC	Government Pension Sponsors	2.18
Legal & General Investment Management Ltd.	AstraZeneca PLC	Traditional Investment Managers	1.87
State Street Global Advisors, Inc.	AstraZeneca PLC	Traditional Investment Managers	1.82
GQG Partners LLC	AstraZeneca PLC	Traditional Investment Managers	1.75
PRIMECAP Management Company	AstraZeneca PLC	Traditional Investment Managers	1.51
FMR LLC	AstraZeneca PLC	Traditional Investment Managers	1.38
UBS Asset Management AG	AstraZeneca PLC	Traditional Investment Managers	1.32
ABRDN PLC	AstraZeneca PLC	Traditional Investment Managers	1.12
Columbia Management Investment Advisers LLC	AstraZeneca PLC	Traditional Investment Managers	1.11
Schroder Investment Management Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.92
TIAA	AstraZeneca PLC	Traditional Investment Managers	0.89
HSBC Global Asset Management (UK) Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.87
BNY Asset Management	AstraZeneca PLC	Traditional Investment Managers	0.85
Ignis Investment Services Ltd.	AstraZeneca PLC	Traditional Investment	0.85

		Managers	
Royal London Asset Management Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.85
Amundi Asset Management SAS	AstraZeneca PLC	Traditional Investment Managers	0.83
Aviva Investors Global Services Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.75
Janus Henderson Group PLC	AstraZeneca PLC	Traditional Investment Managers	0.75
Northern Trust Global Investments	AstraZeneca PLC	Traditional Investment Managers	0.73
Franklin Resources Inc.	AstraZeneca PLC	Traditional Investment Managers	0.71
Fisher Asset Management LLC	AstraZeneca PLC	Traditional Investment Managers	0.69
M&G Investment Management Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.67
JP Morgan Asset Management	AstraZeneca PLC	Traditional Investment Managers	0.63
Invesco Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.48
American Century Investment Management Inc	AstraZeneca PLC	Traditional Investment Managers	0.43
Fidelity International Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.41
SAFE Investment Co. Ltd.	AstraZeneca PLC	Sovereign Wealth Funds (<5% stake)	0.4
Kuwait Investment Authority	AstraZeneca PLC	Sovereign Wealth Funds (<5% stake)	0.37
Schroder Investment Management North America Inc.	AstraZeneca PLC	Traditional Investment Managers	0.35
Rathbone Investment Management Ltd.	AstraZeneca PLC	Traditional Investment Managers	0.33
Société Générale SA	AstraZeneca PLC	Banks/Investment Banks	0.33
Putnam LLC	AstraZeneca PLC	Traditional Investment Managers	0.32
Dimensional Fund Advisors L.P.	AstraZeneca PLC	Traditional Investment Managers	0.31
Geode Capital Management, LLC	AstraZeneca PLC	Traditional Investment Managers	0.3

Source: prepared by the authors with data from (AstraZeneca, 2021, p. 214)

d) Corporate governance

Board of Directors

The Board is responsible for the company's corporate governance, establishes its strategy and policies, has general responsibility for supervision of risks and also supervises progress toward fulfilment of its strategic goals and annual plans. The Board fulfils these responsibilities through a schedule of meetings which includes a formal review of the annual strategy. The Board also assesses the extent of the company's understanding of and compliance with its obligations to its shareholders and other interested parties. This includes periodic audits of the company's financial results and critical business issues. (AstraZeneca, undated-b)

The Directors are collectively responsible for AstraZeneca's success. Also, the non-executive Directors are responsible for exercising independent and objective judgment and controlling and challenging management. The Board is responsible to the shareholders for managing the company's affairs and represents the interests of all interested parties. The Board has delegated some of its competencies in five main committees and in the CEO. (AstraZeneca, undated-c)

The Board is made up by the following persons

TABLE 4: Board of Directors

Leif Johansson	Chair
Philip Arthur John Broadley	Director
USAn A. Ashley	Board member
Michel Demare	Board member
Deborah DiSanzo Eldracher	Board member
Diana Layfield	Board member
Sherilyn McCoy	Board member
Tony Mok	Board member
Nazneen Rahman	Board member
Andreas Rummelt	Board member
Aradhana Sarin	Board member
Pascal Soriot	Board member
Marcus Wallenberg	Board member

Source: prepared by the authors with data from https://www.astrazeneca.com/our-company/leadership.html

Executives

The Superior Executive Team (SET) is the body through which the Chief Executive Officer (CEO) exercises the authority delegated to them by the Board. The CEO directs the SET and has executive responsibility for the management, development, and performance of the company. The CEO, the Chief Financial Officer (CFO), and the SET also lead the development of our strategy for review, constructive questioning, and approval by the Board of Directors as part of our annual process of strategy review.

The AstraZeneca SET is made up by the following persons

TABLE 5: Executives

Pascal Soriot	CEO
Aradhana Sarin	CFO
Katarina Agebord	EVP and President of AstraZeneca AB, Suecia
Pam Cheng	EVP
Ruud Dobber	EVP
Marc Dunoyer	CEO of Alexion and CSO of AstraZeneca
David Fredrickson	EVP
Susan Galbraith	EVP
Menelas Pangalos	EVP
Jeff Pott	EVP
Iskra Reic	EVP
Leon Wang	EVP

Source: prepared by the authors with data from https://www.astrazeneca.com/our-company/leadership.html

Pascal Soriot has a contract as AstraZeneca CEO with an annual salary of £1,190,330 plus benefits. (AstraZeneca UK Limited, 2016) Aradhana Sarin has a contract as CFO with an annual salary of £850,000 plus benefits. (AstraZeneca UK Limited, 2021) For their performance in the year 2021, both the CEO and the CFO received bonuses on top of their salaries. (AstraZeneca, 2021, p. 100)

e) The Covid-19 Vaccine

On April 30, 2020, AstraZeneca and Oxford University announced an agreement for the development and global distribution of a recombinant adenoviral vector vaccine that could potentially help to prevent the disease caused by SARS-COV-2. (AstraZeneca, 2020a) Per the agreement, the aim of the collaboration was to bring to patients a possible vaccine that was being developed by the Jenner Institute and the Oxford University Vaccines Group. AstraZeneca would take charge of the development and production and distribution of the vaccine worldwide. (AstraZeneca, 2020a)

The adenoviral vector Covid-19 vaccine developed by Oxford University and marketed by AstraZeneca is an adenovirus vector vaccine based on the common cold modified with genetic material from the SARS-Cov-2 spike protein. The adenovirus vector was designed from adenovirus DNA eliminating the essential genes to prevent it from replicating so that it can act as a carrier and not as a cause of the disease. Adding DNA from the coronavirus spike protein creates the complete genetic sequence for the adenoviral vector vaccine, the genetic code is introduced in a producer cell, where it is transcribed and translated to form the adenoviral vector Covid-19 vaccine. The human cell line is designed to contain the missing adenovirus genes so that when it is introduced the vector vaccine can infect the cells and use the cellular machinery and the missing viral genes to replicate producing identical copies. The vaccine molecules also replicate with cellular division and the process continues until the proper concentration is reached, the addition of a chemical product causes the cells to open and the vector vaccine is harvested ready to be tested, filtered, and purified before it is placed in vials. (AstraZeneca, undated-a)

The agreement between Oxford and AstraZeneca stated that the company would not use a profit-based approach in setting the sale price for the vaccine and would guarantee equal access worldwide. Accordingly, on June 4, 2020, it established an agreement with the Coalition for Epidemic Preparedness Innovations (CEPI); Gavi, the Vaccine Alliance; and Serum Institute of India (SII). The agreement for 750 million dollars with CEPI and Gavi was to support the manufacture, acquisition, and distribution of 300 million doses of the possible vaccine by late 2020. (AstraZeneca, 2020b)

Also, AstraZeneca entered into a licensing agreement with SII to supply a billion doses to low-and middle-income countries, with a commitment to supply 400 million by late 2020. (AstraZeneca, 2020b) For the company, these agreements marked its commitment to permitting global access to the vaccine, including low-and middle-income countries, beyond the company's recent partnerships with the United Kingdom and the United States. In mid-2020, AstraZeneca signed an agreement with Fundación Carlos Slim, a Mexican non-profit organization, to contribute to production in Argentina and Mexico and distribution without financial in Latin America, of the potential Covid-19 Vaccine, AZD1222, during the pandemic. Initially, this agreement will provide 150 million doses in the region, excluding Brazil, which will be covered by AstraZeneca's agreement with the Brazilian Government announced in June 2020. (AstraZeneca Mexico, 2020)

Although trials of the vaccine were successful and it was approved for emergency use in late 2020, the commitment to deliver doses by late 2020 was not met and the company had serious difficulties delivering doses until mid-2021. In the year 2021, around 2.500 billion vaccine doses were produced and delivered to more than 180 countries. It is estimated that to date Vaxzevria has helped prevent 50 million cases of Covid-19 and five million hospitalizations and has helped save more than a million lives. (AstraZeneca, 2021, p. 6) According to UNICEF, only 263,212,810 doses were for the COVAX mechanism. (UNICEF, 2022)

This year, AstraZeneca will continue supplying the vaccine worldwide. The company has adopted an affordable price approach that allows it to maintain broad global access. This includes an escalated pricing approach depending on per capita gross domestic income, and continues to maintain the company's commitment to supply the vaccine without profit in low-income countries, in line with the agreement with Oxford University. (AstraZeneca, 2021, p. 44)

AstraZeneca's response to the pandemic also included the development of Evusheld (tixagevimab combined with cilgavimab, formerly AZD7442), a combination of long acting antibodies (LAAB) against the virus. Evusheld is the first LAAB combination with proven benefits both in prevention and in treatment of Covid-19, and the first antibody therapy that has shown a high level of protection against symptomatic Covid-19 in an environment of prevention prior to exposure, as shown in the PROVENT phase 3 prophylaxis trial in August 2021. Evusheld received FDA Emergency Use Authorization (USA) in December de 2021 for prophylaxis prior to exposure (prevention) of Covid-19 in persons with moderate to severe immune compromise due to a medical condition or immunosuppressant drugs who cannot mount an adequate immune response to vaccination against Covid-19, and individuals for whom vaccination against Covid-19 is not recommended. In 2021, AstraZeneca agreed to supply the United States government 700,000 doses of Evusheld, and in January de 2022 the United States government announced that it had agreed to purchase an additional 500,000 doses. Evusheld also has emergency use authorization for prevention of Covid-19 in several other countries, including France. (AstraZeneca, 2021, p. 29)

2. PFIZER-BIONTECH

a) BioNTech

1. General information on the company

BioNTech SE is a German biopharmaceutical company founded in 2008, specialized in immune therapy and vaccines for cancer and infectious diseases. It was formally founded on June 2, 2009, as a German joint stock company named Petersberg 91, V AG, changing its name to BioNTech AG on December 11 of the same year. In March 2019, it was incorporated as a European joint stock company (Societas Europaea, or SE) under the laws of Germany and the European Union. Its common shares are listed on the Nasdaq Global Select Market under the ticker symbol "BNTX," Its tax domicile is An der Goldgrube 12, D-55131 Mainz, Germany. (BioNTech SE, 2022) At present it has 3,082 employees and collaborations with other companies like: Genentech, Inc.; Sanofi S.A.; Genmab A/S; Genevant Sciences GmbH; Pfizer Inc.; Shanghai Fosun Pharmaceutical (Group) Co., Ltd.; and Regeneron Pharmaceutical, Inc. (BioNTech SE, 2022).

The company was founded with an initial investment of 150 million Euros from the Strüngmann family through the risk investment funds AT Impf and MIG Fonds, which prioritize investments in young and innovative companies (Thomas Strüngmann & Family, undated). Andreas and Thomas Strüngmann[3] are known for being the founders of Hexal AG, a German pharmaceutical company which they sold to Novartis, together with their majority stake in Eon Labs, Inc., a US public pharmaceutical company, for a combined price of € 5.6 billion (then USD 8.3 billion). The scientific founders of BioNTech were Ugur Sahin, MD, the company's current CEO; Christoph Huber, MD; and Özlem Türeci, MD. The Scientific Advisory Committee has the support of Rolf Zinkernagel, M.D., Ph.D., and Hans Hengartner, Ph.D. Dr. Zinkernagel is a professor emeritus at Zurich University Hospital and former director of the Zurich Institute of Experimental Immunology. Professor Zinkernagel received the Nobel prize in 1996 for the discovery of how the immune system recognizes cells infected by viruses. Professor Hengartner is a world renowned immunologist and professor emeritus of the Federal Institute of Technology ETH of Zurich and the University of Zurich. (BioNTech SE, 2022)

[3] These twin brothers are ranked 200th among the world's richest persons. https://www.forbes.com/profile/andreas-struengmann/?sh=5447af971109

2. Corporate structure

BioNTech functions as a holding company made up by different subsidiaries, which focus on various aspects of the BioNTech business plan. This includes therapeutic development units and also subsidiaries that focus on external services. These subsidiaries are as follows:

TABLE 6: Corporate structure

Subsidiaries	Controlling Investors	Country
BioNTech Cell & Gene Therapies GmbH	BioNTech SE (NasdaqGS:BNTX) (100.00% Owned)	Mainz, Rhineland-Palatinate | Germany
BioNTech Delivery Technologies GmbH	-	Halle, Saxony-Anhalt | Germany
BioNTech Diagnostics GmbH	BioNTech SE (NasdaqGS:BNTX) (100.00% Owned)	Mainz | Germany
JPT Peptide Technologies GmbH	BioNTech Diagnostics GmbH (100.00% Owned)	Berlin, Berlin | Germany.
BioNTech Innovative Manufacturing Services GmbH	BioNTech SE (NasdaqGS:BNTX) (100.00% Owned)	Idar-Oberstein | Germany
BioNTech R&D GmbH	BioNTech SE (NasdaqGS:BNTX) (100.00% Owned)	Viena, Austria
BioNTech Research and Development, Inc.	BioNTech SE (NasdaqGS:BNTX) (-% Owned)	Delaware | United States
BioNTech Rna Pharmaceuticals Gmbh	BioNTech SE (NasdaqGS:BNTX) (-% Owned)	Mainz | Germany

In addition to these affiliates, which are described in the 2020 annual financial report, the quarterly financial report with cutoff as of September 30, 2021, reports the creation of five new affiliates: (BioNTech SE, 2021c)

1. BioNTech Turkey Tıbbi Ürünler Ve Klinik Araştirma Ticaret Anonim Şirketi, which translates into English as BioNTech Turkey Pharmaceutical Products and Clinical Trials Trading JSC, Istanbul, Turkey, wholly owned by BioNTech SE.
2. BioNTech Pharmaceutical Co. Ltd., Shanghai, a wholly owned affiliate of BioNTech Pharmaceutical Asia Pacific Pte. Ltd., a wholly owned consolidated affiliate of BioNTech SE.
3. BioNTech Services Marburg GmbH, which is a consolidated affiliate of BioNTech SE.
4. 4. BioNTech Real Estate An der Goldgrube 12 GmbH & Co. KG, which is owned 100 percent by BioNTech Real Estate Holding GmbH, an affiliate of BioNTech SE.
5. The company acquired PhagoMed Biopharma GmbH, known as BioNTech R&D (Austria) GmbH), an Austrian biotechnology company specialized in the development of a new class of antibacterial drugs.

According to BioNTech, they were the first company to develop a vaccine with proven efficacy to prevent Covid-19. With the income produced by the vaccine, the company proposed to accelerate developments already under way to fight other diseases like cancer and infectious diseases and plans to expand its research on other diseases like auto-immune diseases, allergies, regenerative medicine, and inflammatory diseases. Thus, they seek to position themselves as a global power in biotechnology that develops multiple immune therapy products. (BioNTech SE, 2021c)

In relation to the SARS-COV-2 vaccine, in the year clinical trials were conducted to observe the efficacy of a third booster dose, which was approved by the U.S. Food and Drug Administration (FDA) and granted conditional marketing authorization (CMA) in the European Union. Medical trials were conducted to test the vaccine's efficacy for children ages 5 to 12 with favorable results and results from tests in children ages 6 months to 5 years are expected for 2022.

3. Financial structure

Shareholders

The company BioNTech has 246.807.808 (BioNtech SE, 2022) common shares currently in circulation. Its main shareholders son:

TABLE 7: BioNTech main shareholders

Shareholders	share	%share	Share type	Country
AT Impf GmbH	114,410,338	47.371	VC/PE Firms (>5% stake)	Germany
Sahin M.D., Ugur (Co-Founder, CEO & Member of Management Board)	41,663,430	17.25	Individuals/Insiders	Germany and Turkey
Baillie Gifford & Co.	6,532,436	2.70	Traditional Investment Managers	Edinburgh, Scotland, London UK
PRIMECAP Management Company	4,283,358	1.77	Traditional Investment Managers	Pasadena, California, USA
Jennison Associates LLC	4,073,570	1.69	Traditional Investment Managers	NY, USA
Capital Research & Mgmt Co.	2,937,044	1.22	Traditional Investment Managers	L.A, California, USA
Huber, Christoph Hubert	2,202,040	0.912	Individuals/Insiders	Austria
J O Hambro Capital Management Ltd.	1,954,880	0.81	Traditional Investment Managers	London, UK
Salvia GmbH	1,893,651	0.784	Corporations (Private)	Germnay
FMR LLC	1,765,270	0.73	Traditional Investment Managers	Boston, Massachusetts USA
Shanghai Fosun Pharmaceutical (Group) Co. Ltd.	1,580,777	0.65	Corporations (Public)	Shangai, China
BlackRock, Inc. (NYSE:BLK)	1,474,109	0.61	Traditional Investment Managers	NY, USA
T. Rowe Price Group, Inc.	1,163,839	0.48	Traditional Investment Managers	Baltimore, Maryland, USA
Coatue Management LLC	1,033,985	0.43	Corporations (Private)	NY, USA
Sean Marett			Individuals/Insiders	
Susquehanna International Group LLP	928,758	0.38	Corporations (Private)	Bala Cynwyd, Pensilvania, USA
Tofino Gmbh	711,828	0.295	Corporations (Private)	
MIG Verwaltungs AG	700,845	0.29	VC/PE Firms (<5% stake)	Munich, Germany
Poetting Ph.D., Sierk (CFO, MD, COO & Member of Management Board)	654,387	0.271	Individuals/Insiders	Germany
Universal Investment GmbH	551,200	0.23	Traditional Investment Managers	Fráncfort, Germany

Source: BioNTech SE. (2021). BioNTech Annual Report 2020. SEC. https://www.sec.gov/Archives/edgar/data/1776985/000156459021016723/bntx-20f_20201231.htm. Updated with information for new shareholders who were added starting in 2021. For more information see: BioNTech SE. «Quarterly Report for three and nine months ended September 30, 2021». Washington, D.C. SEC, November 9, 2021. https://www.sec.gov/Archives/edgar/data/0001776985/000177698521000009/form6kq3financialreport09n.htm.

According to the annual report presented to the Securities and Exchange Commission (SEC) in 2021, 67.16% of the shares belong to members of the oversight board and the board of directors. (BioNTech SE, 2022, p. 201)

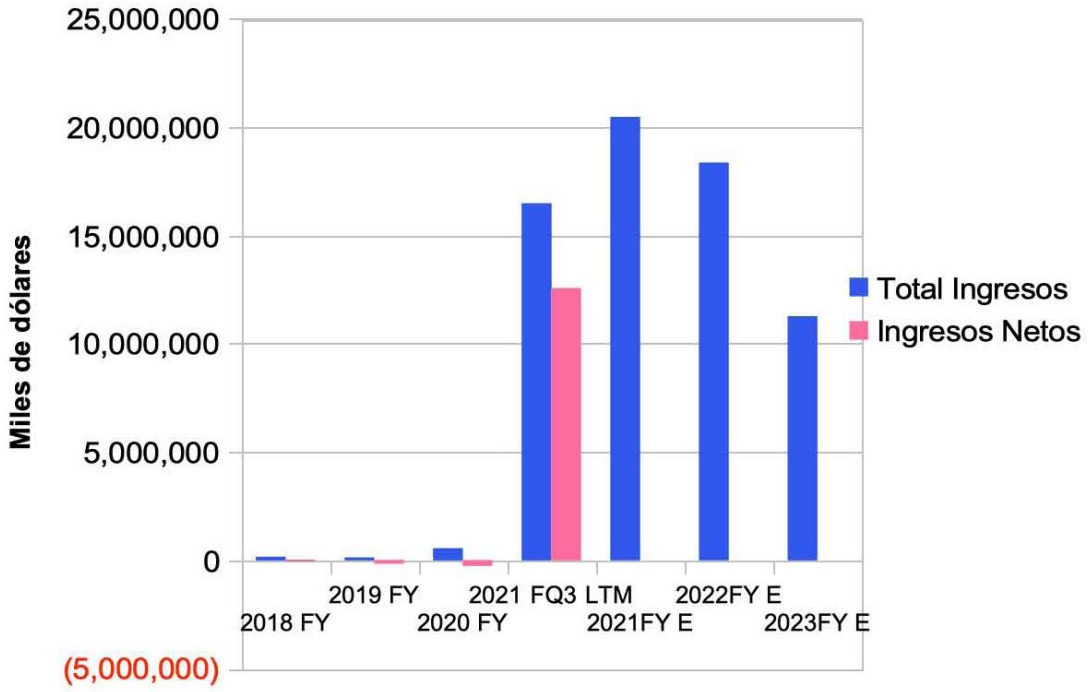
Financial position

As regards BioNTech's financial position, based on data available in its 2020 annual report and its last report from the third four-month period of 2021, we observe that between 2018 and 2020, while the company had positive growth in total revenues, it had negative growth in its net revenues. This situation changes radically starting in 2021, when it had unprecedented growth due to the approval and marketing of the Covid vaccine. In effect, the growth observed exceeded expectations from early 2021, if we take into account that installed capacity to produce vaccines was increased in response to the emergence of new variants of the virus like Delta and Omicron (BioNTech SE, 2022). Emergency use authorization for the vaccine in children and adolescents and approval of booster doses also contributed to such growth. The combined performance of total revenues and net revenues is shown in Graph No. 1.

If we take into account the company's financial performance in the last 12 months taking August 30, 2021, as a reference point (see Table 3), we observe more pronounced growth of both the company's total revenues and its net revenues. Total revenues rose 2,893.7%, reaching 16.48337675 billion dollars. For their part, net revenues amounted to 8.95696625 billion dollars, which represents 54.34% growth in its net revenues.

Taking into account these figures and sale forecasts for 2022, total revenues are expected to grow 24.233% reaching 20.4818637 billion dollars. This implies similar growth in net revenues, calculated at 10.843050 billion dollars, which would represent 52.94% annual growth from 2021. In 2023 total and net revenues are expected to continue to grow, although perhaps at a slower rate taking into account that a majority of the population will be vaccinated and there is greater competition due to the entry in the market of new approved vaccines. Although this outlook is uncertain, appreciation of shares on the market can be observed as new variants of the virus like Delta and Omicron have appeared.

GRAPH 1: Total revenues vs. Net revenues

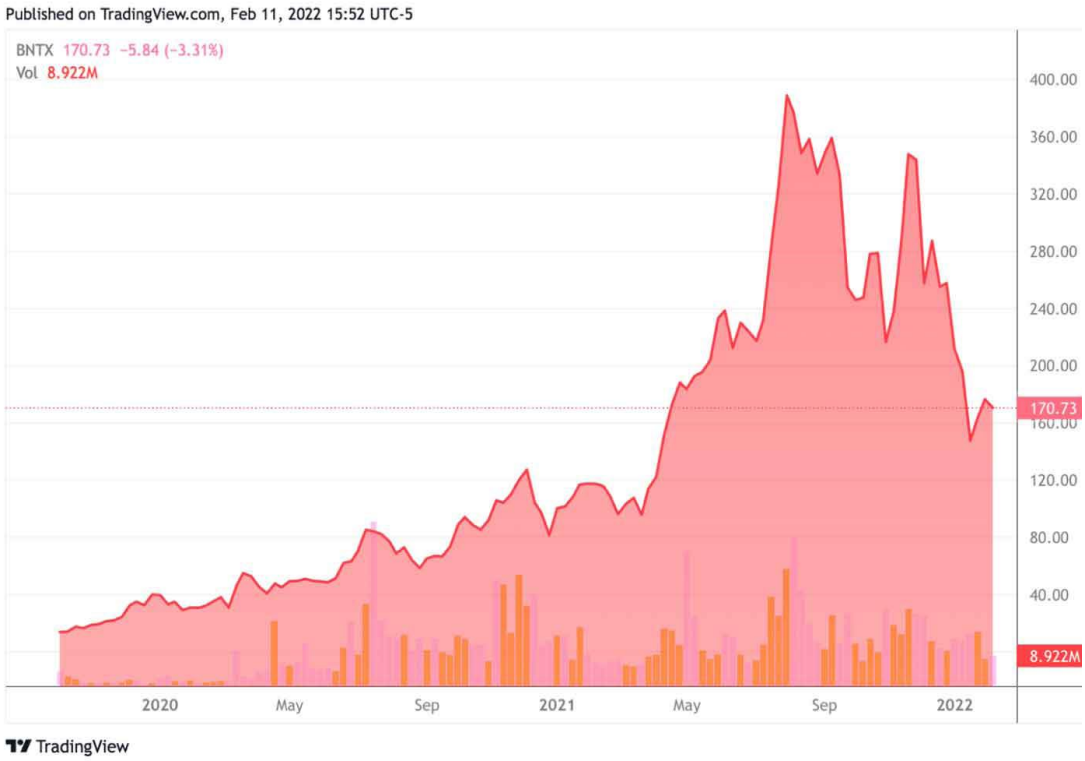


Source: Prepared by the authors with data from: BioNTech SE. (2021). BioNTech Annual Report 2020. SEC. https://www.sec.gov/Archives/edgar/data/1776985/000156459021016723/bntx-20f_20201231.htm and BioNTech SE. «Quarterly Report for three and nine months ended September 30, 2021». Washington, D.C. SEC, November 9, 2021. https://www.sec.gov/Archives/edgar/data/0001776985/000177698521000009/form6kq3financialreport09n.htm

As regards stock performance, we observed that, when the company first sold its shares, they were offered at 13.53 dollars with constant growth as the pandemic began and the vaccine was developed and approved for emergency use. Its shares reached their highest point on August 8, 2021, closing at 389.01 dollars, which represented a 2.775% appreciation since the company's shares were first listed on the stock exchange.

This unprecedented growth occurred due to the delta variant and the announcement by Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases and member of the United States Coronavirus Task Force of the decision to apply booster doses to the immunosuppressed population, the expectation for publication of new Food and Drug Administration (FDA) guidance on who would receive a third dose, and the wait for definitive FDA approval of the vaccine for persons over age 16. (Cotizalia, 2021) At the close of our investigation, the company's shares were listed at 154.58 dollars and it had a Market Cap of 37.3223 billion dollars. For its part, its Enterprise Value was 34.9397 billion dollars.

GRAPH 2: New York Stock Exchange listing of BioNtech, from October 7, 2019, to February 11, 2022



Source: https://seekingalpha.com/symbol/BNTX/chart

4. Corporate governance

The company has the financial structure of a two-tier European limited liability stock company (Societas Europaea or SE). Its corporate organs are: the Board of directors, the Oversight Board, and the shareholders' meeting. The first two are separate and no one may be a member of both simultaneously.

The Board of directors is in charge of the day-to-day management of the company in accordance with applicable legislation, its bylaws, and the internal regulations of them Board of Directors. The Board of Directors represents the company in relations with third parties. The Oversight Board monitors and supervises the Board of Directors. It is responsible for appointing and removing members of the Board of Directors.

The members of the Oversight Board are elected by the shareholders' meeting in accordance with German laws in force. In accordance with its internal regulations, one of its members must be an independent member with experience in accountancy, internal control, and auditing, a role filled by Dr. Ulrich Wandschneider. The Oversight Board has created an Audit Committee; a Remuneration, Appointments, and Governance Committee; and a Capital Markets Committee. (BioNTech SE, 2022, p. 223).

TABLE 8: Board of Directors

Prof. Ugur Sahin	CEO	co-founded BioNTech in 2008 and has since been the CEO. He is a physician, immunologist and expert in messenger mRNA drugs.
Sean Marett	Business and Commercial Director	has been with BioNTech since 2012. He has global sales experience, particularly at GlaxoSmithKline in the U.S. and Pfizer in Europe. He was involved in the sale of Lorantis to Celldex Therapeutics, Inc. He is married to Özlem Türeci (BioNTech SE, 2022, pp. 210-211).
Dr. Sierk Poetting	Chief Operating Officer	joined BioNTech in September 2014. Between 2012 and 2014 he worked at Novartis as vice president and chief financial officer of the Sandoz division in North America.(BioNTech SE, 2022, p. 211).
Prof. Özlem Türeci	Chief Medical Officer	is co-founder and Chief Medical Officer of BioNTech. She leads the clinical development of BioNTech's "Project Lightspeed", which aimed to develop and distribute the COVID-19 vaccine. Previously she was CEO and Medical Director of Ganymed Pharmaceuticals AG, which she co-founded with Ugur Sahin and Christoph Huber (BioNTech SE, 2022).
Ryan Richardson	Chief Strategy Officer	has been Chief Strategy Officer of BioNTech since 2018. Previously, he was a Managing Director in the Global Healthcare Investment Banking team at J.P. Morgan in London. There he focused on advising biotech industries on M&A and financing strategies.(BioNTech SE, 2022).
Jens Holstein	Chief Financial Officer	Chief Financial Officer of BioNTech. Previously he was CFO of MorphoSys AG where he played a key role in the creation of a fully integrated biopharmaceutical company. Prior to this position he served as Group CFO of Fresenius SE (BioNTech SE, 2022).

Source: prepared by the authors with data from (BioNTech SE, 2022, p. 210).

For its part, the Oversight Board is made up by: Helmut Jeggle (Chairperson). He is a partner and corporate capital risk investor in Salvia GmbH; Michael Motschmann, member of the Board of Directors and head of capital investments in MIG Capital AG; Prof. Christoph Huber, Professor Emeritus of Johannes-Gutenberg University of Mainz; Dr. Ulrich Wandschneider, Managing Director of Beebusy Capital GmbH and independent consultant to companies in the biotechnology sector. (BioNTech SE, 2022, p. 212)

Also, the company has a Code of Conduct and Policy on Conflicts of Interest (BioNTech SE, undated), and a report on sustainability, where it presents certain commitments in the areas of Corporate Social Responsibility and Sustainability. (BioNTech SE, 2021a)

b) Pfizer

1. General information

Pfizer is a global biopharmaceutical company founded in the United States recognized as one of the largest companies in the industry, with a long tradition dating back to 1849, and was incorporated under the laws of the state of Delaware on June 2, 1942.[4] In its own description, it is devoted to "discovery, development, manufacture, marketing, distribution, and sale of biopharmaceutical products in the world. It offers drugs and vaccines in various therapeutic areas." (Pfizer Inc., 2022e) Therapeutic areas the company develops include: internal medicine, oncology, hospital, vaccines, inflammation and immunology, and rare diseases.

It has a portfolio of recognized products, among them Lipitor, Lyrica, Norvasc, Celebrex, and Viagra. At present it has 79,000 employees and its tax domicile is located at 235 East 42nd Street, New York, United States. Its common shares are listed on the New York Stock Exchange under the ticker symbol "PFE." As of February 22, 2022, it had 5,623,346,471 common shares.

The bulk of its revenues are from manufacture and sale of its biopharmaceutical products and agreements with other companies to develop and market new products. (Pfizer Inc., 2021b) Its operations are global and it sells its products in 125 countries, with a growing sha-

re to emerging countries.

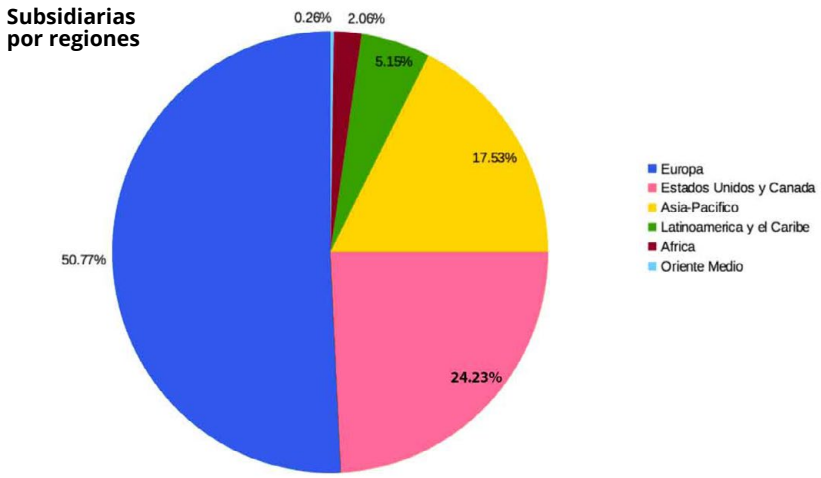
Revenues from operations outside the USA were 51.5 billion dollars, which amount to 63% of its total revenues in 2021, driven mainly by sales of the Covid-19 vaccine. In total revenues, Japan was its largest national market outside the United States in 2021. (BioNTech SE, 2022; Pfizer Inc., 2022e)

Its products are sold mainly to wholesalers, although the company also directly supplies hospitals, clinics, government agencies, and pharmacies. Vaccines are sold primarily to governments and non-government institutions.

2. Corporate structure

The company operates with 387 subsidiaries, which are distributed globally as follows:

GRAPH 3: Regional presence of Pfizer subsidiaries in the world



Source: Prepared by the authors with data from Pfizer Inc. (2022). Pfizer Inc. Annual Report for the fiscal year ended December 31, 2021. SEC. https://www.sec.gov/ix?doc=/Archives/edgar/data/0000078003/000007800322000027/pfe-20211231.htm

[4] Delaware, although not on the list of tax havens, is known to be a financial enclave where more than 1.3 million companies are registered, a number that exceeds the state's inhabitants.

3. Financial structure

Shareholders

The company Pfizer has 5,623,346,471 common shares currently in circulation (Pfizer Inc., 2022e). Its 20 main shareholders are:

TABLE 9: Pfizer main shareholders

Shareholders	share	%share	Country
The Vanguard Group, Inc.	465,274,925	8.27	Malvern, Pennsylvania, USA
BlackRock, Inc. (NYSE:BLK)	409,985,644	7.29	Nueva York, USA
State Street Global Advisors, Inc.	284,816,832	5.06	Boston, Massachusetts , USA
Capital Research and Management Company	240,070,904	4.27	Los Angeles, CA, USA
Wellington Management Group LLP	221,419,680	3.94	Boston, Massachusetts , USA
Geode Capital Management, LLC	101,065,073	1.80	Boston, Massachusetts , USA
Northern Trust Global Investments	67,992,185	1.21	Chicago, IL, USA
Norges Bank Investment Management	58,634,055	1.04	Oslo, Noruega
BNY Mellon Asset Management	53,928,359	0.96	Boston, Massachusetts , USA
State Farm Mutual Automobile Insurance Co.	53,568,997	0.95	Bloomington, IL , USA
Charles Schwab Investment Management, Inc.	52,889,797	0.94	San Francisco, CA , USA
Morgan Stanley, Investment Banking and Brokerage Investments	46,221,881	0.82	New York, NY , USA
T. Rowe Price Group Inc.	43,258,716	0.77	Baltimore, Maryland, USA
Franklin Resources Inc.	42,379,282	0.75	San Mateo, California, USA
UBS Asset Management	41,792,606	0.74	Zurich, Suiza
Dimensional Fund Advisors L.P.	39,214,900	0.70	Austin, TX, USA
Legal & General Investment Management Limited	38,558,087	0.69	London, UK
MFS Investment Management, Inc.	33,853,498	0.60	Boston, Massachusetts , USA
Deutsche Asset & Wealth Management	32,106,169	0.57	New York, NY , USA
Eaton Vance Management	26,937,954	0.48	Boston, Massachusetts , USA
TIAA	25,709,570	0.46	USA

Source: Pfizer Inc. (2021). Pfizer Inc. Annual Report for the fiscal year ended December 31, 2020. SEC. https://www.sec.gov/Archives/edgar/data/0000078003/000007800321000038/pfe-20201231.htm

In the above table, we observe that Pfizer's main corporate shareholders are private investment funds, the majority of which are not listed on any stock exchange. The only publicly held shareholders are Blackrock, Franklin Resources Inc., and T. Rowe Price Group Inc. Blackrock is Pfizer's second largest shareholder with a 7.30% interest and is also known for being the leading provider of ETS (Exchanged Trade Funds) in the global market with 36.9% of the market. (Ocaranza & Aspra, 2021; Pfizer Inc., 2021a)

Financial position and stock exchange listing

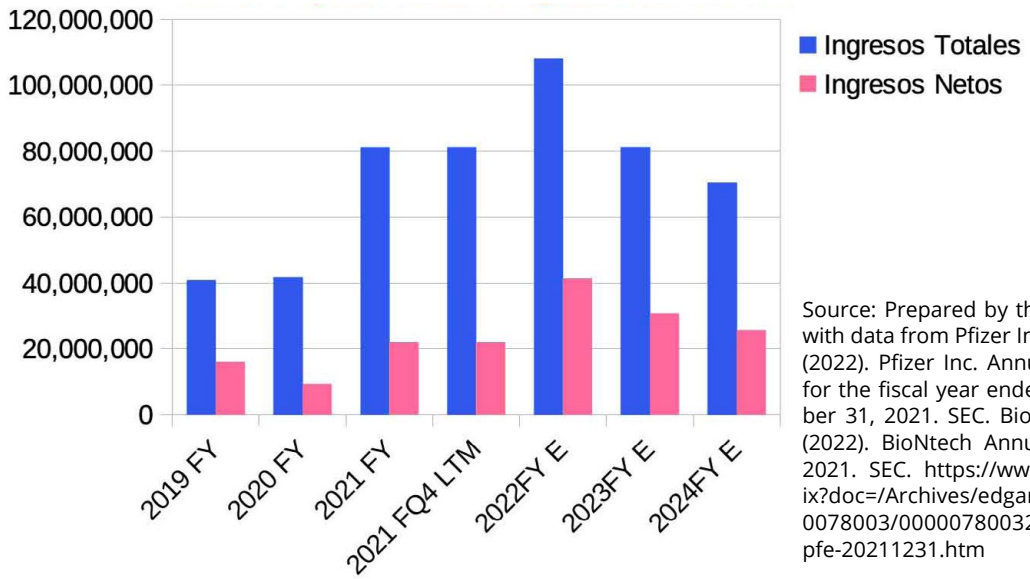
Pfizer has had positive total revenues and net revenues in the last 3 years (see Graph 4). In 2019, its net revenues grew 39.18% from the previous year. The company had a drop in earnings due to the loss of exclusivity for Lyrica, a recognized pain medicine. Also, that year they announced the creation of Viatris, a company that would join Upjohn, which it owns, and Mylan to form a new global pharmaceutical company for generics, Viatris. Since then, Pfizer has focused more on science and innovation of pharmaceutical products.

In the year 2020, Pfizer reported net revenue of 9.159 billion dollars, 42.84% less than the previous year. However, it had growth of sales in cancer medicines, which grew 21% and 29% in rare diseases and vaccines with 16%. (Pfizer Inc., 2021a)

For 2021, its total revenues amounted to 81.288 billion dollars, equal to 95.17% growth in total revenues compared with 2020. Of this figure, the company reports that 42.625 billion, or 52.43%, were from sales of vaccines. Its net revenues for 2021 were 21.979 billion dollars, which exceed its total net revenues in 2020 by 27.03%.

By late 2022, the company expects to obtain earnings greater than the 108.26 billion dollars reported in 2021, as a result of the performance of contracts signed to date. Sales in 2022 are likely to exceed estimates presented to date as a result of: 1) emergency use authorization of a third dose of the vaccine for persons over age 12, which may be extended to children under 12, an application pending approval by the FDA; 2) emergency use authorization of Paxlovid, an antiviral pill intended to treat Covid-19, by the FDA and authorities in the European Union; and 3) Ongoing tests of a vaccine to treat the Omicron variant and other variants of the virus.

GRAPH 4: Pfizer total revenues vs. net revenues 2019-2024



Source: Prepared by the authors with data from Pfizer Inc. (2022). Pfizer Inc. Annual Report for the fiscal year ended December 31, 2021. SEC. BioNTech SE. (2022). BioNtech Annual Report 2021. SEC. https://www.sec.gov/ix?doc=/Archives/edgar/data/0000078003/000007800322000027/pfe-20211231.htm

On the other hand, considering the company's stock exchange information, we find that on December 30, 2019, its shares were worth 36.39 dollars. Since then, they recorded a low point on March 16, 2020, when its shares fell to 27.22 dollars, when Moderna announced its first human trials, which at the time put their vaccine in the lead in the race to develop a viable vaccine. (Nsikan Akpan, 2020)

Since then, its shares have been valued positively as a result of milestones reached in 2020 and 2021, among them Pfizer's obtaining the first emergency use authorization for its Covid-19 vaccine. In effect, on December 8 its shares rebounded to 42.56 dollars per share, their highest point since the start of mass vaccination in the United Kingdom, the first country to approve the vaccine for emergency use.

After this important milestone, Pfizer's share price dropped until March, as did those of other pharmaceutical companies, due to the uncertainty surrounding the evolution of the Covid-19 pandemic and the efficacy of vaccines. The approval of several vaccines and competition among companies reduced demand for shares on the expectation that, once the entire population was vaccinated no new vaccines would be required.

Also, in March the president of the United States, Joe Biden, announced the possibility of releasing patents on the vaccines creating uncertainty regarding present and future revenues from vaccines. However since March de 2021, it has had a positive impact on the share price, due to the appearance of new variants of the virus like Delta and Omicron, approval for use of the vaccine in other age groups outside the priority groups, and extension of emergency use for a third booster dose.

The share price peaked on December 13, 2021, when it reached 59.62 dollars per share in response to growing concerns caused by the emergence and expansion of the Omicron variant. (Editorial, El Economista, 2021)

At present, the share price is 48.53 dollars, 33.36% above its pre-pandemic level, showing that vaccines have become a powerful incentive to invest in the pharmaceutical industry. With this share price, the company has a Market Cap of 272,392 billion dollars, while its Enterprise Value has reached 282,8444 billion dollars.

GRAPH 5: Pfizer's New York Stock Exchange listing in the last 5 years

Source: Seeking Alpha. (2022). Pfizer Inc. (PFE) Stock Price Today, Quote & News. https://seekingalpha.com/symbol/PFE

4. Corporate governance

The Pfizer management team is named in the ordinary board meeting held in the Annual Shareholders' Meeting. It is made up by:

TABLE 10: Pfizer Executives

Albert Bourla	Chairman of the Board and Chief Executive Officer
William Carapezzi	Executive Vice President, Global Business Services and Transformation
Frank A. D'Amelio	Chief Financial Officer
Mikael Dolsten	Chief Scientific Officer, President, Worldwide Research, Development and Medicine
Lidia Fonseca	Chief Digital & Technology Officer, Executive Vice President
Angela Hwang	Group President, Pfizer Biopharmaceuticals Group
Rady A. Johnson	Chief Compliance, Quality and Risk Officer
Douglas M. Lankler	General Counsel, Executive Vice President
Aamir Malik	Chief Business Innovation Officer, Executive Vice President
Michael McDermott	Chief Global Sourcing Officer, Executive Vice President, Executive Vice President
Payal Sahni	Chief Personal Experience Officer, Executive Vice President
Sally Susman	Director, Corporate Affairs, Executive Vice President, Executive Vice President

Source: prepared by the authors with data from (Pfizer Inc., 2022e)

The members of its board of directors are: Dr. Albert Bourla (CEO), Ronald E. Blaylock (Founder, managing partner of Gennx360 Capital Partners); Susan Desmond-Hellmann, M.D. (principal advisor and board member of the Bill and Melinda Gates Medical Research Institute); Joseph J. Echevarria (CEO of Deloitte LLP), Suzanne Nora Johnson (retired Vice-President of Goldman Sachs Group since 2007), Susan Hockfield, Ph.D. (Professor of Neuroscience and President Emeritus of MIT), Dan R. Littman, M.D., Ph.D. (Director in Pfizer since 2018, Member of the Committees on Governance and Sustainability, Regulation and Compliance, and Science and Technology); Shantanu Narayen (President and CEO of Adobe Inc. (Adobe), a producer of creative and digital marketing software); and James Quincey (President and CEO of The Coca-Cola company). (Pfizer Inc., 2022d)

In addition to these two governing bodies, the company has a series of organs in the areas of responsibility, ethics, compliance, sustainability, and diversity, which can be consulted here: (Pfizer Inc., 2022c, 2022a, 2022b)

c) Development of the Pfizer-BioNTech vaccine

BioNTech entered into an agreement with Pfizer and together they obtained approval for emergency use from the WHO for their messenger RNA (mRNA) vaccine Comirnaty (BNT162b2), which was the first mRNA vaccine to be authorized or approved for temporary use in more than 152 countries worldwide, including the United States, Canada, the European Union, and the United Kingdom.

The global agreement between the two companies excludes China, Hong Kong, Macao, and Taiwan, countries with which BioNTech has a cooperation agreement with the company Fosun Pharma. In the other countries, marketing rights are held by Pfizer, except in Germany and Turkey, which are countries where BioNTech will market the vaccine directly.

In the German context, BioNTech, with just 13 years in existence and 3,082 employees, has become one of the most profitable companies, outperforming consolidated companies like Volkswagen, which has 40,000 employees and a history dating back to the Second World War. Of the company's total earnings, 30% go to the German public treasury, creating a powerful incentive to avoid the release of patents.

Vaccines using mRNA technology like the Pfizer/BioNTech and Moderna vaccines were developed using patents that were developed with public funding from the United States government to the University of Pennsylvania. In the case of the Pfizer/BioNtech vaccine, on December 20, 2016, the company acquired a sublicense for the patent use through Cell Script, which in turn obtained the sublicense from mRNA Ribotherapeutics Inc., a company which in turn held an exclusive license from trusts held by the University of Pennsylvania, a non-profit corporation. (Pfizer Inc., undated)

According to the companies' own reports, by mid-December 2021 they had supplied more than 2.6 billion doses (BioNTech SE, 2021b) in 152 countries worldwide In late 2022, BioNTech and Pfizer expect to increase their manufacturing capacity to 4.0 billion doses. They signed cooperation agreements with Biovac Institute (Pty) Ltd., a South African biopharmaceutical company, to manufacture vaccines for distribution in the African Union and with Eurofarma Laboratorios SA, a Brazilian biopharmaceutical company, to manufacture vaccines for distribution in Latin America. The last-named company will receive the pharmaceutical product from the United States and was expected to start producing finished doses in 2022

with an operating capacity of 100 million finished doses. This increase in capacity to produce vaccines is noteworthy, if we consider that before the pandemic Pfizer had the capacity to produce 200 million vaccines across its entire vaccine portfolio.

Despite this increase in production of vaccine doses and the earnings these pharmaceutical companies have obtained, as of December 31, 2021, "they delivered only 1% of them to low-income countries and 14% to medium-low-income countries... nor have they cooperated with the mRNA technology transfer hub created by the WHO and other organizations in South Africa, which represents a significant obstacle for full and fair access to the Covid-19 Vaccine." (Amnesty International, 2022)

To boost production and guarantee maintenance of the cold chain for the vaccine (-80°C to -60°C (-112°F to -76°F)), the company has infrastructure at different points, both in the United States and in Europe. An estimated 86 providers in 19 countries take part in the process of producing the vaccine, contributing 280 materials, based on data provided by Pfizer. (Corbella, 2021) Vaccines produced in the United States take 60 days and involve several facilities located in three different states. (Cott et al., 2021)

Production of the vaccine begins in Chesterfield, Missouri, with plasmids containing a coronavirus gene, which are used as cloning vectors to prompt human cells to construct de coronavirus proteins and respond to attack by the virus. There, the plasmids are used to modify a group of E-coli bacteria; these cells are cultured and fermented to reproduce those cells and then release the plasmids that have been produced. Then they release their DNA, which is frozen at extremely low temperatures -20 degrees centigrade.

These containers are sent to Andover, Massachusetts, where the DNA is converted to mRNA, the active ingredient in the vaccine. Other containers are sent to Marburg, Germany, to be processed for Europe and other places. The bags of mRNA are frozen at -20 degrees centigrade and sent to a facility in Kalamazoo, Michigan, where they are processed to finish the vaccine and package it in vials.

Lots arriving in Marburg, Germany send the bags of filtered RNA to the Pfizer facility in Puurs, Belgium, one of Pfizer's largest sites for sterile injectables for the European market. (Cott et al., 2021)

In addition to the vaccine, Pfizer developed the drug Paxlovid, which obtained emergency use authorization from the FDA in December de 2021. Paxlovid is a new oral treatment which has shown positive results in adult and pediatric (12 years of age or more and weighing at least 40 kg) patients who present a high risk of severe Covid-19, including hospitalization or death. Based on its last financial report "as of February 8, 2022, we anticipated 22 billion dollars in revenue for Paxlovid in 2022, which includes courses of treatment we expect to deliver in fiscal year 2022, mainly in relation to supply contracts signed or committed in late January 2022." (BioNTech SE, 2022; Pfizer Inc., 2022e, p. 29) In addition, it bears mention that this company signed a voluntary license agreement for this medicine with the Medicines Patent Pool (MPP), a public health organization backed by the United Nations, for generic production of this medicine to be marketed in low- and medium-income countries. However, as Amnesty International has observed, while it represents a step forward to democratize access to medicines, this agreement would not be viable in countries where generic medicines cannot be sold like Brazil, Peru, Iraq, Kazakhstan, and Lebanon. (Amnesty International, 2022)

3. MODERNA INC.

a) General information

Moderna, Inc. (MRNA) is a US biotechnology company founded in 2010 with headquarters in Kendall Square, at the heart of the innovation ecosystem in Cambridge, Massachusetts, which develops therapies and vaccines based on messenger RNA for treatment of diseases in 5 therapeutic areas: infectious diseases, immuno-oncology, rare diseases, cardiovascular diseases, and autoimmune diseases. It has 7 modalities: prophylactic vaccines, systemic cell surface and secreted therapeutics, vaccines against cancer, intratumoral immuno-oncology, localized regenerative therapeutics, systemic intracellular therapeutics, and systemic y inhaled pulmonary therapeutics. (Moderna INC., 2022d)

The company is listed on the National Association of Securities Dealers Automated Quotation (Nasdaq) with the symbol MRNA. The company has strategic alliances with other pharmaceutical companies like AstraZeneca PLC; Merck & Co., Inc.; Vertex Pharmaceutical Incorporated; Vertex Pharmaceutical (Europe) Limited; the Biomedical Advanced Research and Development Authority; the Defense Advanced Research Projects Agency; the National Institute of Allergy and Infectious Diseases; the National Institutes of Health; the Coalition for Epidemic Preparedness Innovations; Metagenomi, Inc.; and the Bill & Melinda Gates Foundation. (Moderna INC., 2022d)

b) Corporate structure

At present, Moderna employs 2,700 persons and has 44 programs in development and a portfolio of products in its five therapeutic areas. The only approved commercial product is the Covid-19 vaccine (Spikevax).

The company has the following subsidiaries:

TABLE 11: Moderna corporate structure

Subsidiaries	Country
Moderna Biotech Uk Limited	Londres, UK
Brizo Ltd.	Bermuda
Moderna Australia Pty Ltd	Australia
Moderna Austria GmbH	Austria
Moderna Biopharma Canada Corporation	Canada
Moderna Biotech Ireland Limited	Irland
Moderna Biotech Securities, Inc.	Massachusetts, USA
Moderna Biotech Spain, S.L.U.	Spain
Moderna Charitable Foundation, Inc.	Delaware, USA
Moderna France	France
Moderna Germany GmbH	Germany
Moderna Italy S.r.l.	Italy
Moderna Japan Co., Ltd.	Japan

Moderna Korea Limited	Souh Korea
Moderna Netherlands B.V.	Netherlands
Moderna Poland sp. z o.o.	Poland
Moderna Services, Inc.	Delaware, USA
Moderna Sweden AB	Sweden
Moderna Switzerland GmbH	Switzerland
Moderna TX, Inc.	Delaware, USA
Moderna US, Inc.	Delaware, USA

Source: Moderna INC. (2022). Moderna Inc. Annual Report for the fiscal year ended December 31, 2021. SEC. https://www.sec.gov/ix?doc=/Archives/edgar/data/1682852/000168285222000012/mrna-20211231.htm

Its financial report states that it has presence in more than 12 countries, including the United States, Canada, European countries, and the Asia-Pacific region, and also has preliminary agreements for mRNA production facilities with the governments of Canada and Australia. Also, in a press conference on February 15, 2022, they announced the expansion of their commercial network through the creation of new affiliates in Malaysia, Taiwan, Singapore, and Hong Kong. (Moderna INC., 2022c).

c) Financial structure

Shareholders

At present the company has 402,872,986 common shares in circulation and its main shareholders are:

TABLE 12: Moderna main shareholders

Shareholders	Share	% Share	Country
Baillie Gifford & Co	45772079	11.36	Edinburgh, UK
BlackRock Inc.	27661473	6.87	New York, USA
Vanguard Group Inc.	27426570	6.81	Malvern, USA
Flagship Pioneering	17581016	4.36	Cambridge, USA
State Street Global Advisors Inc.	14863370	3.69	Boston, USA
Stephane Bancel CEO & Director	14734907	3.66	
Robert S. Langer Jr. Independent Non Executive Director & Member of Scientific Advisory Board	11509357	2.86	
Ocha Llc	7004880	1.74	Boston, USA
Geode Capital Management LLC	6032463	1.50	Boston, USA
Theleme Partners LLP	5022174	1.25	London, UK
Coatue Management LLC	4287003	1.06	Nueva York, USA
Morgan Stanley	4111775	1.02	New York

FMR LLC	3833797	0.95	Boston, USA
Northern Trust Global Investments	3482909	0.86	London, UK
Banque Pictet & Cie SA	2983879	0.74	Geneva, Switzerland
Barclays PLC	2890253	0.72	London, UK
BNY Asset Management	2700409	0.67	Boston, USA
T. Rowe Price Group Inc.	2431808	0.60	Baltimore, USA
Norges Bank Investment Management	2330759	0.58	Oslo, Norway
Noubar B. Afeyan Co-Founder, Independent Non Executive Chairman & Member of Technology Advisory Board	2238970	0.56	

Source: Moderna INC. (2022). Moderna Inc. Annual Report for the fiscal year ended December 31, 2021. SEC. https://www.sec.gov/ix?doc=/Archives/edgar/data/1682852/000168285222000012/mrna-20211231.htm and review of Annexes 13F and form 4 submitted by Moderna Inc. to the SEC, available at: https://www.sec.gov.

As we have observed in other cases, a majority of the company's shareholders are private capital firms devoted to asset management and banks based in the United States. The only publicly held companies that invest in Moderna are: BlackRock Inc., Morgan Stanley, Barclays PLC, and T. Rowe Price Group Inc.

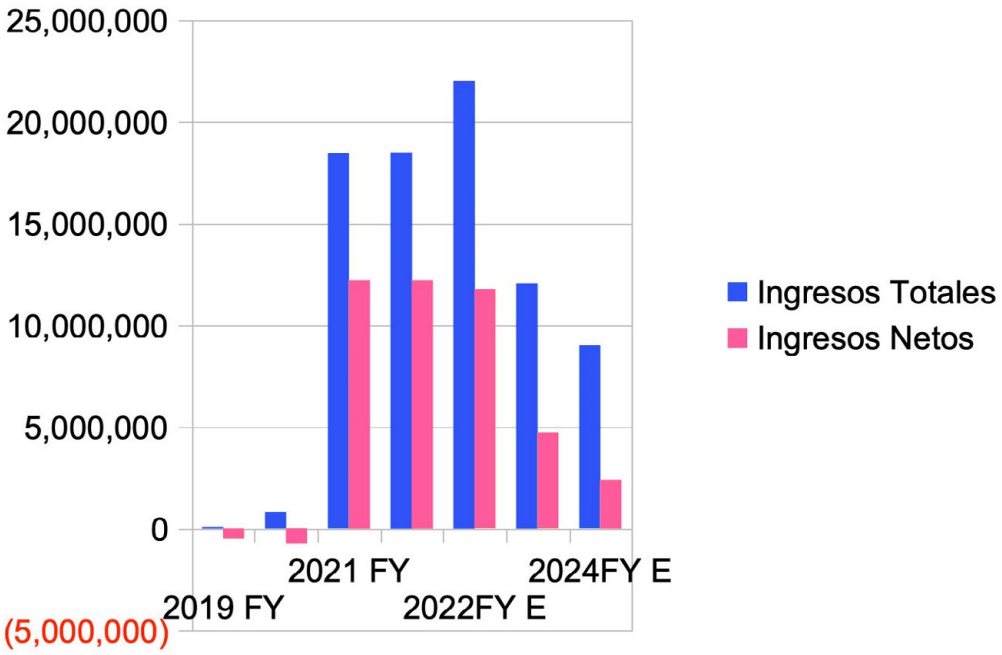
Financial position

Based on its last financial report, Moderna Inc. started to generate profits from the year 2020 with the development of its Spikevax vaccine, which at present is the company's only commercial product. As shown in Graph No. 6, the company reported negative total and net revenues from its founding in 2010 through 2019, when it was in the investigational phase developing programs in the field of mRNA. In 2020, it started to operate as a commercial company forming a series of strategic alliances with pharmaceutical companies like AstraZeneca, Merck, and Vertex and with organizations sponsored by the government and private foundations centered on global health initiatives like BARDA (Biomedical Advanced Research and Development Authority), DARPA (Defense Advanced Research Projects Agency), the National Institutes of health (NIH), and the Bill and Melinda Gates Foundation.

In 2019 the company had total revenues of 60 million dollars and negative net revenues of 514 million dollars. In 2020, due to the development of the vaccine and commitments established for sales to governments, especially to the US government, its total revenues rose to 803 million dollars but its net revenues remained negative, reaching 747 million dollars, largely due to the accumulation of a 1.600 billion-dollar deficit following a decade devoted to research and experimentation without commercial products. (Rodriguez, 2020)

For 2021, as a result of sales of 824 million doses of its vaccine, the company had total revenues of 18,471 million dollars, 2,200% more than the previous year, and for the first time positive net revenues of 12.202 billion dollars, which represents a 1,733% increase over 2020. (Moderna INC., 2022d)

GRAPH 6: Moderna Inc. total and net revenues 2019-2024



Source: Moderna INC. (2022). Moderna Inc. Annual Report for the fiscal year ended December 31, 2021. SEC. https://www.sec.gov/ix?doc=/Archives/edgar/data/1682852/000168285222000012/mrna-20211231.ht

Forecasts for 2022 estimate total revenues at 22.021 billion dollars, equal to 19.21% more than the company obtained in 2021, while its net revenues are estimated at 11.754 billion dollars, just 3.6% less than reported for the previous year. (Moderna Inc., 2022d) Forecasts for 2023 and 2024, although they show positive growth in total and net revenues, estimate revenues at below the rates obtained in 2021 and 2022, because they depend on vaccine sales since other products are still in the research phase and have not received authorizations for marketing. (Moderna INC., 2022d)

As regards stock exchange information, we find that the company started with a share price of 18.27 dollars on December 7, 2018, which remained practically stable throughout 2019 until the onset of the pandemic. Estimates are that at the time the company's stock exchange offering was the largest among biotechnology companies. The company obtained "563 million dollars in net earnings and was valued at 7.5 billion dollars." (Rodriguez, 2020)

In 2020, Moderna showed constant growth in its share price, peaking December 7 at 159.52 dollars, equal to 773% growth from the start through that day when new data was presented confirming 94.1% effectiveness for its vaccine (Federal Drug Administration, 2020).

Since then, the price has fluctuated but has continued to trend upward, reaching the highest point in its history on September 7, 2021, when its share price reached 448.11 dollars, which represents 2,352.70% growth from the initial listing. This growth was generated by expectations for the production of booster vaccines which the company has had to produce due to the appearance of new variants of the virus.

Since then, and until March 22, 2022, the share price has fallen, reaching 186 dollars per share, 918% higher than when the initial offering. Although the price of Moderna's shares has fallen, it remains above the highest levels seen in 2020.

With this share price, the company has a Market Capitalization of 75.252 billion dollars and its Enterprise Value amounts to 49.89 billion dollars.

GRAPH 7: Moderna Nasdaq Listing from 2018 to date

Source: Seeking Alpha. (2022). Moderna, Inc. (MRNA) Stock Price Today. https://seekingalpha.com/symbol/MRNA

d) Corporate governance

In accordance with its guidelines for corporate governance (Moderna Inc., 2022b), the company's businesses are managed by the Board or Directors, which acts on behalf of the shareholders. In turn, the board delegates responsibility for managing the company's day-to-day affairs in its executives. The board may create and/or dissolve the committees it deems appropriate. At present the company has committees for audits, compensation, appointments, and corporate governance, and a product development committee.

The management team is made up by Stephane Bancel (CEO and Founding Director), Stephen Hoge (President), Juan Andres (Head of Technical and Quality Operations), Paul Burton (Medical Director), Kate Cronin (Brand Director), Marcello Damiani (Digital and Operative Excellence Director), Tracey Franklin (Human Resources Director), Shannon Thyme Klinger (Secretary of company and Legal Affairs Director), and David W. Meline (Chief Financial Officer). (Moderna Inc., 2022a)

The board is made up by Stephane Bancel (CEO and Founding Director), Noubar B. Afeyan (Cofounder, CEO of Flagship Pioneering), Stephen Berenson (Managing Partner, Flagship Pioneering), Sandra Horning (Cofounder and advisor, EQRx), Robert S. Langer Jr. (Academic, Cofounder of Moderna), Elizabeth G. Nabel (Executive Vice-president of Strategy in ModeX Therapeutics), Francois Nader (President, CEO, and Executive Director of NPS Pharmaceutical, Inc.), Paul L. Sagan (Principal Advisor and executive in-residence at General Catalyst Group Management, LLC), Elizabeth Tallett (former director of Hunter Partners), Henri Termeer (retired president, CEO, and Director of Genzyme). (Moderna Inc., 2022a)

e) Development of the Covid-19 Vaccine

Moderna was founded in 2010 as a company in the investigational phase in the field of mRNA. Due to the crisis created by the current pandemic, its technology was used to develop a vaccine in under a year. Based on results from clinical trials, it obtained an Emergency Use Authorization (USA) from the European Commission and the United States Food and Drug Administration (FDA) and authorizations from other regulatory agencies worldwide.

Factors that allowed the company to develop a vaccine in record time and market it at large scale include funding from the National Institutes of Health (NIH) and the BARDA (Biomedical Advanced Research and Development Authority) (Rizvi, 2021). Based on its last annual financial report (Moderna INC., 2022d, p. 13), in April 2020, Moderna received funding from BARDA to accelerate development of its mRNA-1273 Covid vaccine in the amount of 483 million dollars. This agreement was amended in July 2020 to conduct phase 3 studies with 30,000 participants [and] clinical and pharmacovigilance trials with an additional 472 dollars. In March 2022, another amendment to this agreement was signed to increase funding by 308 million dollars to conduct a study with pediatric and adolescent patients. This financial report mentions that "the maximum BARDA award, including the 2020, 2021, and 2022 amendments, was approximately 1.7 billion dollars." (Moderna INC., 2022d, p. 129)

4. CANSINO - DRUGMEX

a) Cansino

1. General information on the company

CanSino Biologics Inc. is a company with private capital established in Tianjin, China, in 2009. Its co-founders presently occupy the positions of president and executive directors, and are also the main beneficiaries. The company develops vaccines for human use, with activities ranging from discovery, expression, and purification of antigens to implementation of clinical trials and the process of mass production of vaccines (Cansino Biologics, 2022). At present they have 16 vaccines for the prevention of 13 infectious diseases, among them the Ad5-EBOV vaccine for prevention of Ebola and the Ad5-nCoV vaccine for prevention of Covid-19. (National Research Council Canada, 2020)

2. Corporate structure

CanSino SPH Biologics Inc. (CanSino SPH) was founded in Shanghai with an initial capital of 100,000,000 RMB (15,000,375 USD) in partnership with Shanghai Sunway Biotech Co, Ltd., and Shanghai Biomedical Industry Equity Investment Fund Partnership. In 2021, the company increased its capital to 1,204,890,000 RMB (180,738,018 USD), with 49.8% for Cansino, 49% for Sunway Biotech, and 1.2% for Industry Investment Fund, which was founded as an affiliate of the company. (Cansino Biologics Inc., 2021)

3. Financial structure

Shareholders.

Total number of common shareholders at the end of the first quarter of 2022: 24,318.

TABLE 13: Main shareholders

Shareholders	share	%share
HKSCC NOMINEES LIMITED	98,067,897	39.63%
Xuefeng YU	7,874,200	7.22%
Dongxu QIU	17,114,200	6.92%
Helen Huihua MAO	15,195,441	6.14%
Tao ZHU	17,874,200	7.22%
Jianfa LIU	3,336,667	1.35%
Future Industry Investment Fund	5,281,905	2.13%
Tianjin Qianyi Enterprise Management Partnership	5,281,905 acciones	1.40%
Tianjin Qianrui Enterprise Management Partnership	3,299,475	1.33%
China Merchants Bank Co., Ltd	2,048,030	0.83%

Source: Prepared by the authors with information from (Cansino Biologics Inc., 2022)

Holdings of the ten main shareholders not subject to restrictions on sale: HKSCC NOMINEES LIMITED, 98,067,897 shares; Future Industry Investment Fund, 5,281,905 shares; China Merchants Bank Co., Ltd. con 2,048,030 shares; Ge SUN con 1,735,000 shares; Hong Kong Securities Clearing Company Limited, 1,632,168 shares; Suzhou Qiming Rongxin Equity Investment Partnership, 1,037,470 shares; China Construction Bank Corporation, 924,013 shares; Shanghai Li'an Venture Capital Investment Center, 920,000 shares; Industrial and Commercial Bank of China, 864,335 shares; and Suzhou Litai Venture Capital Investment Center, 626,071 shares.

Financial data (Cansino Biologics Inc., 2021, 2022)

The company's shares have been listed on the Main Board of the Hong Kong Limited Stock Exchange (HKEX:06185) since March 28, 2019, and A shares were listed on the Sci-tech Innovation Board of the Shanghai Securities Exchange (SHSE: 688185) on August 13, 2020.

In the first half of 2021 and the first quarter of 2022, the company reported: revenues of 466,758,000 RMB (70,015,450 USD) and 499,355,000 (74,905,122 USD), respectively; total assets 10,251,537 RMB (1,537,768 USD) and 11,933,983 (1,790,142 USD), respectively; and total net equity 7,016,381 RMB (1,052,483 USD) and 8,034,486 (1,205,203 USD), respectively. (Currency exchange date 05/07/22)

4. Corporate governance

The Board of Directors of Cansino Biologics is made up by Dr. Xuefeng YU, Dr. Shou Bai CHAO, Dr. Tao ZHU, Dr. Dongxu QIU and Jing WANG as executive directors; Liang LIN, Nisa Bernice Wing-Yu LEUNG, and Zhi XIAO as non-executive Directors; and Shiu Kwan Danny WAI, Sra. Zhu XIN, Sr. Shuifa GUI, and Jianzhong LIU as independent Directors.

TABLE 14: Executives

Name	Position	Description
Dr.Xuefeng YU	Cofundador/Director General/Presidente	He is primarily responsible for overseeing strategic development, overall operations and management, as well as being the main decision making force of our company. He is responsible for the management of the business operations center. From 1996 to 1998, he worked as a staff scientist at IBEX Technologies, Inc. (a publicly traded company on the Toronto Stock Exchange, ticker symbol: IBT). He joined Sanofi Pasteur in May 1998 and was head of fermentation development in Canada when he left the company in August 2009.
Dr.Shou Bai CHAO	Director de Operaciones/Director Ejecutivo	He is Chief Operating Officer (COO) and Chief Executive Officer of CanSino Biologics. He is the company's deputy CEO and is primarily responsible for managing day-to-day operations and strategy development. In addition, he oversees production management and quality control. He previously served as vice president and senior vice president at AstraZeneca plc from January 2008 to April 2018, and was president and board director at the China-US Biopharmaceutical Association from June 2014 to June 2016.
Dr.Tao ZHU	Cofundador, Director Científico y Director Ejecutivo	He is Chief Scientific Officer (CSO) and Chief Executive Officer of CanSino Biologics. He is primarily responsible for leading vaccine research and development for CanSinoBIO. In addition, he oversees the management of regulatory and clinical affairs. Together with experts from the Academy of Military Medical Sciences, he led the development and preclinical research of the only recombinant Ebola vaccine available in China, the production of which was approved by the CFDA. He also led the combination vaccine project and the PBPV project, both of which were selected as one of the major science and technology projects of the Twelfth National Five-Year Plan for the "Creation of Significant New Drugs" . Its achievements also include the establishment of a conjugation technology platform and the development of a variety of vectors, including CRM197, in addition to the process development, preclinical research and clinical application of several products, including MCV4, and the invention of seven patents in the PRC.
Dr.Dongxu QIU	Cofundador/Vicepresidente Ejecutivo/Director Ejecutivo	Co-founder, Executive Vice President and CEO of CanSino Biologics, he is primarily responsible for advising on the business and strategic development of the company. He has led several rounds of venture financing as well as technology transfers. From January 1993 to April 1997, he was a research scientist at Biomira. Inc. From 1999 to 2000, he was associate director of product operations at Altarex Inc, responsible for analytical development and product formulation. He was head of scientific operations at ARIUS Research Inc. from 2000 to 2002, president of Asia at MDS Capital from May 2003 to September 2005, deputy general manager at Shanghai Jima Pharmaceutical Technology Co., Ltd. from 2006 to 2009, and general manager at ChinaBio LLC from March 2007 to April 2011.
Ms.Jing Wang	Director comercial/ejecutivo	Executive Director and Chief Commercial Officer of CanSino Biologics, she is primarily responsible for the overall business operations of the company.She has led the establishment of our financing, financial operations, human resources and administration systems, as well as the completion of the pre-IPO fundraising of approximately RMB743 million. Successfully led the company's IPO on the Main Board of the Hong Kong Stock Exchange in 2019 and on the Sci-tech Innovation Board of the Shanghai Stock Exchange in August 2020, making the company the first dual-listed vaccine company.

Non Executive Director
Mr.Liang LIN
Ms.Nisa Bernice Wing-Yu LEUNG
Mr.Zhi XIAO

Independent Non Executive Director
Mr.Shiu Kwan Danny WAI
Ms.Zhu XIN
Mr.Shuifa GUI
Mr.Jianzhong LIU

Source: Prepared by the authors with information from Cansino Biologics (Cansino Biologics, 2022)

5. Development of the vaccine

Cansino's Ad5-nCOV is a vaccine designed to combat infectious Covid-19 disease caused by the SARS-Cov2 virus. The development of the vaccine is based on modification of the type 5 adenovirus (Ad5), which carries the gene that codes the S protein of SARS-Cov2 instead of its own replication code. Once inoculated, the Ad5 acts as a vector to introduce the gene sequence of the S protein in human cells, where it is transcribed and attains its condition as an antigen, triggering the immune response and the creation of specific antibodies for that protein. Based on the results of phase 3 trials, this vaccine reaches its maximum protection 14 days after application, reporting 69% efficacy in prevention of all symptomatic Covid-19 disease and 95.5% efficacy in the prevention of severe Covid-19 disease; at 28 days it reports 65% efficacy in the prevention of all symptomatic Covid-19 disease and 90% efficacy in the prevention of severe Covid-19 disease. Phase 1 and 2 trials were registered between March and April 2020, then phase 3 trials were conducted with 40 thousand participants located in Mexico, Argentina, Chile, Pakistan, Saudi Arabia, and Russia. Cansino is a single-dose vaccine that does not require special refrigeration. (Ministry of Health, 2021)

The development of the Cansino vaccine was headed by the virologist and division general Chen Wei, a specialist in biodefense, in a joint project between the Biotechnology Institute of the Academy of Military Medical Sciences and CanSino Biologics. The institute is part of the Academy of Military Sciences of the Chinese People's Liberation Army (AMS), founded in Shanghai in 1951, and currently headquartered in Beijing. It is a high level military research institute which coordinates research around national defense, the development of the armed forces, and military operations. Since 2017, its president is the IT specialist and general Yang Xuejun, who formerly held the position of president in the National University of Defense Technology. In 2011, to mark the academy's 60th anniversary they presented the drug called "Night Eagle," designed to combat sleep deprivation in soldiers during missions. In collaboration with Cansino Biologics, they presented vaccine candidates for the prevention of infectious diseases, Ebola in 2014 and Covid-19 in 2020. (Cansino Biologics, 2022)

In June 2020, the vaccine obtained authorization from the Chinese Central Military Commission to be applied to military personnel for a period of one year. In February 2021, the Chinese National Administration of Medical Products approved emergency use of the vaccine, and almost at the same time, Mexico issued its own authorization through the Federal Commission for Protection against Sanitary Risks. (COFEPRIS, 2021)

In 2021, Cansino had manufacturing points in China (Tianjin Cansino), Brazil (Bionmm), Malaysia (Solution Biologics), Mexico (Drugmex), Pakistan (National Institute of Health), and Russia (Petrovax). (Cansino Biologics, 2022) Cansino formalized contracts for the sale of 74.7 million doses of the Cansino vaccine with the governments of Argentina, Ecuador, Chile, Mexico, Pakistan, and Malaysia, and obtained emergency use authorization in 10 countries in the Americas and Asia, without having yet obtained approval from the World Health Organization. (UNICEF, 2022)

On May 19, 2022, the WHO granted an Emergency Use License (EUL) for ONVIDECIA, the vaccine manufactured by CanSino Biologics, China, adding it to the WHO's list of vaccines validated for the prevention of Covid-19 caused by SARS-CoV-2. CONVIDECIA was evaluated in accordance with the WHO emergency use procedure based on examination of data relating to quality, safety, and efficacy; a risk management plan; programmatic suitability; and an inspection of the manufacturing site conducted by the WHO. The Technical Advisory Group for the Emergency Use List, convened by the WHO and made up of global experts in regulation, has determined that the vaccine complies with WHO standards for protection against Covid-19 and that the vaccine's benefits greatly outweigh the risks. (World Health Organization, 2022b) In this regard, the president and CEO of CanSinoBIO noted that "we are pleased to have obtained the EUL, and the recommendation for use of the Strategic Advisory Group of Experts (SAGE) on the Immunization Committee and the certificate of Good Manufacturing Practices" and stressed the social value this recognition has for the laboratory. (CanSinoBIO, 2022)

b) Drugmex

1. General information

Drugmex is the pharmaceutical plant the Mexican government chose to package the Cansino Bio vaccine, developed by CanSino Biologics and the Beijing Biotechnology Institute. The vaccine has been approved for emergency use by the Chinese Government since June 25, 2020.

Drugmex was founded in 2008, with a pharmaceutical plant that has 3,900 m2 of floor space, with production lines for sterile injectable solutions, lyophilizates, and high technology with estimated capacity of 7 million lyophilized vials a year and 6 million injectable solutions a year. It is strategically located in Queretaro, in central Mexico, 220 kilometers northwest of Mexico City. (Drugmex, undated)

Drugmex is a subsidiary of the Dromex Group and its objective is to cover Third Party or Contract Manufacturing (CMO) service for sterile injectable products in lyophilized pharmaceutical forms and solutions in ampoules and vials, for human consumption.

2. Corporate structure (Dromex, undated)

For 30 years, Dromex has focused on supply and representation of manufacturers of active substances in the Argentinean pharmaceutical industry. Dromex decided to expand to other countries in Latin America and Europe, laying the foundation for the Dromex Group.

The following companies make up the corporate structure of the Dromex Group:

- Dromex Argentina: With over 30 years' experience in supply and representation of manufacturers of active substances in the Argentinean pharmaceutical industry.

- Dromex Biotech: In 2015, this company installed a plant for Development and Production of sterile ophthalmic products for third parties in Argentina, with installed capacity of 90 thousand bottles a day.

- Dromex Brazil: With presence in the Brazilian market since the year 2001, with offices in Sao Paulo, this company engages in activities of supply and representation of manufacturers of active substances for the pharmaceutical industry in the region.

- Dromex International: A company in Barcelona, devoted to the development of businesses in the Spanish pharmaceutical industry. It represents providers of active pharmaceutical ingredients (API) and finished products. It has Pharmaceutical, Biotechnology, Advisory, Training, and Consulting divisions through which it provides clients specific solutions for each project.

- Dromex Innova: A service company focused on innovative solutions for the pharmaceutical industry. It has a high-tech laboratory for medical development of different pharmaceutical forms and the development and validation of analytical methodologies.

- Drugmex Mexico: Drugmex Mexico was incorporated in 2008, with a pharmaceutical plant that has 3,900 m2 of floor space, with production lines for injectable solutions. Drugmex's facilities are located in Queretaro.

3. Financial structure

TABLE 15: Dromex Group main shareholders

Shareholders	Share	% share
Julio Anibal Scardigli Irazabal	13,737,500	70%
Claudia Beatriz Pérez	1,962,500	10%
Alejo Julio Scardigli	1,962,500	10%
Martina Claudia Scardigli	1,962,500	10%

Source: prepared by the authors with data from (Official Bulletin of the Republic of Argentina, 2020)

Based on data from the articles of incorporation submitted to the Mexican Public Registry of Commerce, (Public Registry of Commerce, 2021) Drugmex's shareholders are: July Anibal Scardigli Irazabal (former president of Instituto Biológico Contemporáneo, S.A.); Oswaldo Ramirez Garza; Oscar Daniel Andres Grasso; Rallys Eduardo Pliauzer (President of Laboratorios Bago and the Argentine Chamber of Commerce for Asia and the Pacific); Juan Carlos Flores Partida; Alejandro Miguel Delaney; [and] Cayel, S.A. Productos Científicos, S.A. de C.V. (Carnot laboratories) which is the business name of Carnot Laboratories, the registered trademark with which the company markets pharmaceutical products. (Carnot, undated)

4. Corporate governance

The Board of directors of Drugmex Mexico is made up by:

- July Anibal Scardigli Irazabal - Chairperson
- Guy Jean Leon Savoir Garcia - Secretary

Guy Jean Savoir is Chairperson of the Board of Carnot and Secretary of the Board of Directors of Drugmex. Also, he is a shareholder, with Luis Doporto Alejandre, of LATAM Pharma Innovative Ventures AG, liaison and representative of CanSino Biologics in Latin America. He is the company's interlocutor with the Ministry of Health in the contract to purchase vaccines between the Chinese laboratory and the Mexican government. (Ocaranza, 2021) He has also been President of the foundation Innovación y Ciencia para el Desarrollo Empresarial (INCIDE), a non-profit organization founded in 2013 by an agreement between a group of 100% Mexican companies. INCIDE was created for the purpose of promoting scientific and technological development and innovation in companies [and] creating value and competitive advantages to collaborate in the economic and social development of companies and the nation.

- Oscar Daniel Andres Grasso – Board Member

5. Development of the vaccine

The vaccine named Convidencia (Ad5-nCov) was developed by CanSino Biologics Inc. and the Beijing Institute of Biotechnology. It is an adenovirus-based vaccine with viral vector technology. It was developed for single dose application and must be stored at below eight degrees centigrade. On June 25, 2020, it was approved by the Chinese government and on February 10, 2021, it received emergency use authorization from the Mexican government. The agreement with the company CanSino contemplates the supply of 35 million single doses. Through March 9, 2022, the Mexican government had received 14,137,260 doses of the Ad5-nCov (CanSino) vaccine. It also received 8 million doses in bulk for packaging in Mexico by the company Drugmex, whose plant is located in Queretaro. (SRE, undated))

5. JANSSEN

a) General information de the company

a. Janssen Pharmaceutical, Inc.

Janssen Pharmaceutical, Inc., was founded in 1973 in the United States, and until 2011 was known as Ortho-McNeil-Janssen Pharmaceutical, Inc. It manufactures and markets prescription pharmaceutical products in different medical areas. It has strategic cooperation agreements with Exonate Limited, (Exonate, 2020) and for the development of the Covid-19 vaccine with partners like the Biomedical Advanced Research and Development Authority (BARDA), the United States Food and Drug Administration, the United States Defense Department, the National Institutes of Health, Beth Israel Deaconess Medical Center at Harvard Medical School (Douoguih, 2019). It is a 100% affiliate and the current global representative of the pharmaceutical companies Johnson & Johnson has acquired, among them Ortho Pharmaceutical, Ortho MCNeil, Ortho Biotec, McNeil Pharmaceutical, Tibotec, Cilag, and Centocor. (Janssen Mexico, 2020)

b. Johnson & Johnson

Johnson & Johnson was founded in 1886 and has its main office in the United States. It is devoted to research, development, manufacture, and sale of products related to consumer health and its brands include Johnson's, Aveeno, Listerine, Clean & Clear, Nicorette, Neutrogena, OGX, Tylenol, Sudafed, Benadryl, Zyrtec, Motrin IB, Pepcid, Band-Aid, and Neosporin; drugs prescribed in the areas of immunology, infectious diseases, neuroscience, cancer, pulmonary hypertension, cardiovascular and metabolic disease; and medical devices to treat cardiovascular disease, products for orthopedics and ophthalmology, and solutions for advanced surgery.

b) Corporate structure

The company has 505 subsidiaries distributed in 84 countries worldwide, including the United States. It has 85 manufacturing facilities, 26 in the United States (4 for the consumer health segment, 5 for the pharmaceutical segment, and 17 for the medical devices segment), and 59 abroad (25 in Europe, 25 in Africa - Asia and 9 in the Americas), of which 23 facilities are for the consumer health segment, 13 for the pharmaceutical segment, and 23 for the medical devices segment. (Johnson & Johnson, 2022a)

c) Financial structure

Investors (Johnson & Johnson, 2022b)

TABLE 16: Main shareholders

Shareholders	share	%share
The Vanguard Group	224,338,201	8.92%
BlackRock, Inc.	200,021,352	7.60%
State Street Corporation	144,996,127	5.51%
Geode Capital Management LLC	45021546	1.71%
Northern Trust Global Investments	34054749	1.29%
Wellington Management Group LLP	32772594	1.25%
State Farm Mutual Automobile Insurance Co.	31675492	1.20%
Capital Research & Mgmt Co.	30521558	1.16%
BNY Asset Management	26691531	1.01%
Massachusetts Financial Services Company	26557299	1.01%
Morgan Stanley	25592280	0.97%
Norges Bank Investment Management	24393111	0.93%
UBS Asset Management AG	21515683	0.82%
Columbia Management Investment Advisers LLC	21001469	0.80%
Wells Fargo & Co.	20919716	0.80%
T. Rowe Price Group Inc.	20710365	0.79%

JP Morgan Asset Management	17824070	0.68%
Charles Schwab Investment Management Inc.	17213697	0.65%
Eaton Vance Management	16918087	0.64%
Deutsche Asset & Wealth Management	14409135	0.55%
Franklin Resources Inc.	13992063	0.53%
Robert Wood Johnson Foundation, Endowment Fund	12494000	0.47%
Legal & General Investment Management Ltd.	12206876	0.46%
TIAA	11874263	0.45%
California Public Employees' Retirement System	11688739	0,44

Source: Prepared by the authors with data from (Johnson & Johnson, 2022b)

The Vanguard Group has exclusive power of disposition over 224,338,201 shares, shared power of disposition over 10,444,431, and shared voting power over 3,961,997 shares and does not have exclusive voting power over any of the shares it owns. BlackRock has exclusive voting power over 173,829,767 shares and exclusive power of disposition over 200.021.352 shares and does not have voting power or shared power of disposition over any of the shares it owns. State Street Corporation has shared voting power over 126,280,614 shares and shared power of disposition over 144,677,639 shares; does not have shared voting power or exclusive power of disposition over any of the shares it owns. Also, there are persons with positions in the corporate governance (the CEO, the CFO, three other directors and board members) who hold less than 1% of the company's common shares, who are: Alex Gorsky with 3,311,332, Joaquin Duato with 1,117,143, Paulus Stoffels with 986,375, Jennifer A. Taubert with 532,251, Joseph J. Wolk with 178,167, Charles Prince with 53,343, Ronald A. Williams with 29,323, A. Eugene Washington with 26,733, Anne M. Mulcahy with 25,415, Mark B. McClellan with 14,322, D. Scott Davis with 12,196, Mary C. Beckerle with 10,355, Hubert Joly with 8,613, Marillyn A. Hewson with 8,205, Mark A. Weinberger with 5,288, Jennifer [...] with 5,132, Nadja Y. West with 2,326, Darius Adamczyk with 2,093, and all the board members and mangers named as a group with 9,078,713. Investors who hold more than 5% of the shares and have voting rights are: The Vanguard Group with 224,338,201 of common shares equal to 8.92%. Vanguard has exclusive power of disposition over 224,338,201 shares, shared power of disposition over 10,444,431 shares, and shared voting power over 3,961,997 shares, it does not have exclusive voting power over any of the shares it owns. BlackRock, Inc. Holds 200,021,352 of common shares equal to 7.60%; BlackRock has exclusive voting power over 173.829.767 shares and exclusive power of disposition over 200,021,352 shares and does not have voting power or shared power of disposition over any of the shares it owns. State Street Corporation with 144,996,127 common shares equal to 5.51%; State Street has shared voting power over 126,280,614 shares and shared power of disposition over 144,677,639 shares; it does not have exclusive voting power or exclusive power of disposition over any of the shares it owns. On the other hand are persons with a position in corporate governance (the CEO, the CFO, three other directors and board members) who hold less than 1% of the company's common shares, who are: Alex Gorsky with 3,311,332, Joaquin Duato with 1,117,143, Paulus Stoffels with 986,375, Jennifer A. Taubert with 532,251, Joseph J. Wolk with 178,167, Charles Prince with 53,343, Ronald A. Williams con 29,323, A. Eugene Washington

with 26,733, Anne M. Mulcahy with 25,415, Mark B. McClellan with 14,322, D. Scott Davis with 12,196, Mary C. Beckerle with 10,355, Hubert Joly with 8,613, Marillyn A. Hewson with 8,205, Mark A. Weinberger with 5,288, Jennifer with 5,132, Nadja Y. West with 2,326, Darius Adamczyk with 2,093, and all the board members and mangers named as a group with 9,078,713. Also, 158 investors are registered with between 1 and 9 million common shares, and around 4,018 investors with less than one million.

Financial data (Johnson & Johnson, 2022a)

The company's common shares are listed on the New York Stock Exchange with ticker symbol JNJ, bonds with maturity in May 2024 with the symbol JNJ24C, bonds with maturity in November 2024 with the symbol JNJ24BP, bonds with maturity in November 2028 with the symbol JNJ28, and bonds with maturity in May 2035 with the symbol JNJ35.

The company reports that in the year 2021 it obtained 2.385 billion USD in sales of the Janssen Covid-19 vaccine (634 million USD in the United States and 1.751 billion USD in the rest of the world) of a total of 93.775 billion USD. The net revenue obtained was 20.878 billion USD, while in the year 2020 it was 14.714 billion USD. Its total own funds were 74.023 billion USD in 2021 and 63.278 billion USD in 2020. For total liabilities and own funds they reported 182.018 billion USD in 2021 and 174.894 billion USD in 2020.

d) Corporate governance

TABLE 17: Board of Directors

Name	Position
Alex Gorsky	Executive Director
Darius Adamczyc	President and CEO Honeywell International Inc.
Mary c. Beckerle	Chief Executive Officer, Huntsman Cancer Institute at the University of Utah; Distinguished Professor of Biology and Oncological Sciences, University of Utah
D, Scott Davis	Former Chairman and Chief Executive Officer, United Parcel Service, Inc.
Ian E. L. Davis	Non-Executive Chairman, Rolls-Royce Holdings plc; Former Chairman and Worldwide Managing Director, McKinsey & Company
Joaquin Duato	CEO
Jennifer A. Doudna	Professor of Chemistry; Professor of Biochemistry & Molecular Biology; Li Ka Shing Chancellor's Professorship in Biomedical and Health, University of California, Berkeley
Marillyn A. Hewson	Former Chairman, President and Chief Executive Officer, Lockheed Martin Corporation
Hubert Joly	Former Chairman and Chief Executive Officer, Best Buy Co., Inc.
Mark B. McClellan	Director, Duke-Robert J. Margolis, MD, Center for Health Policy; Margolis Professor of Business Medicine and Policy, Duke University
Anne M. Mulcahy	Former Chairman and Chief Executive Officer, Xerox Corporation
A. Eugene Washington	Duke University's Chancellor for Health Affairs; President and Chief Executive Officer, Duke University Health System
Mark A. Weinberger	Former Global Chairman and Chief Executive Officer, EY (Ernst & Young)
Nadja Y. West	Retired United States Army Lieutenant General and Former United States Army Surgeon General

Source: Prepared by the authors with data from Johnson&Johnson (Johnson & Johnson, 2021)

TABLE 17.1: Steering Committee

Joaquin Duato	CEO and director
Vanessa Broadhurst	Executive Vice President of Global Corporate Affairs
Mathai Mammen	Vice President, Pharmaceutical R&D Business Unit
Thibaut Mongon	Vice Presidente Ejecutivo y Presidente global Consumer Health; CEO Designate, The Planned New Consumer Health Company
James Swanson	Executive Vice President, Chief Information Officer
Michael H. Ullmann	Executive Vice President, General Counsel
Jennifer L. Taubert	Executive Vice President, Global President Pharmaceuticals
Peter M. Fasolo	Executive Vice President, Chief Human Resources Officer
William N. Hait	Executive Vice President, Chief External Innovation Officer, Medical Safety and Global Public
	Health
Kathy Wengel	Executive Vice President, Chief Global Supply Chain Officer
Ashley McEvoy	Executive Vice President and Global President, MedTech
Joseph J. Wolk	Executive Vice President, Chief Financial Officer

Source: Prepared by the authors with data from Johnson&Johnson (Johnson & Johnson, 2021)

e) Development of the Covid-19 Vaccine

The Ad26.COV2.S vaccine, also known as Janssen or Johnson&Johnson, against the disease Covid-19 contains an adenovirus vector of serotype 26 (Ad26), which codes the SARS-CoV-2 spike protein. Based on studies presented by the company, single dose application is 66.9% effective to combat symptomatic SARSCoV-2 infection; 14 days after application it is 76.7% effective against severe disease and 93.1% effective against hospitalization. Twenty-eight days after application, its efficacy increases to 85.4% against severe disease and 100% against hospitalization. (WHO, 2021a) On the vaccine's durability, the company conducted an analysis of probability in the United States in which vaccinated individuals could present symptoms of infection or severe disease or require hospitalization and/or intensive care. The study evaluated the cases of 17 million vaccinated individuals, and as a result the company affirmed that "[...] a single injection of the Johnson & Johnson Covid-19 Vaccine produced protection lasting up to six months against Covid-19 infection, hospitalization, and ICU admission...." Patients were monitored in collaboration with the Department of Science-Aetion, the Brigham and Women's Hospital Department of Medicine, and Harvard Medical School. (Janssen Pharmaceutical, 2022)

In relation to production of the vaccine to prevent Covid-19, the company has the capacity to manufacture the product in 8 countries around the world: France (Sanofi Pasteur), Germany (IDT Biologika), India (Biological E), Italy (Catalent), The Netherlands (Janssen), South Africa (Aspen Pharma), and Spain (Reig Jofre), and in the United States at Catalent, Emergent BioSolutions, Grand River Aseptic Manufacturing, and Merck. Between 2020 and 2021 it signed agreements for sale of 927 million doses with the governments of 15 countries, the European Commission, the African Union, and the COVAX mechanism. It currently has emergency use authorization in 84 countries, in addition to forming part of the emergency use listing issued by the World Health Organization. (UNICEF, 2022)

6. SINOVAC[5]

a) General information

Sinovac Biotech Ltd. Is a biopharmaceutical company focused on research, development, manufacture, and marketing of vaccines against infectious diseases in the People's Republic of China. Its main offices are located in Beijing, China, and it was founded between 1999 and 2001. Sinovac has developed vaccines against hepatitis, seasonal influenza, and pneumococcus, among others.

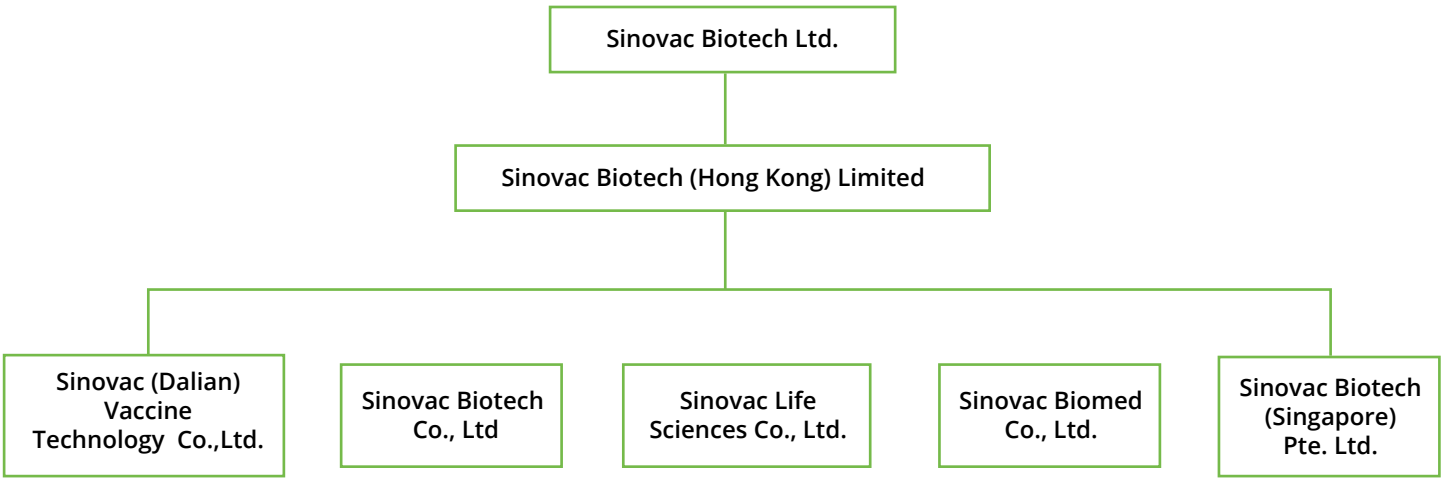
In 2009, Sinovac was the first company in the world to receive approval for its vaccine against the H1N1 virus, which was supplied to the Chinese government for its stockpiling program and vaccination campaign.

b) Corporate structure

The company's main subsidiaries are:

1. Sinovac Biotech (Hong Kong) Limited., Hong Kong
2. Sinovac Biotech Co., Ltd., PRC
3. Sinovac Life Sciences Co., Ltd., PRC
4. Sinovac (Dalian) Vaccine Technology Co., Ltd., PRC
5. Sinovac Biomed Co., Ltd., PRC
6. Sinovac Biotech (Singapore) Pte. Ltd., Singapore
7. Tangshan Yian Biological Engineering Co., Ltd.

ILLUSTRATION 3: Corporate tree



Source: (United States Securities and Exchange Commission, 2021)

[5] The information compiled for this profile was obtained from the following sources: (ABC, 2021; SINOVAC BIOTECH LTD., undated, 2021, 2021)

c) Financial structure

Investors

TABLE 18: MAIN INVESTORS

Shareholders	% share
SAIF Partners IV SAIF Partners is a leading private equity firm that primarily provides growth capital to companies in China or companies with significant operations or business in China.	18.93%
Yin Weidong	11.03%
Vivo Capital, LLC Vivo Capital, LLC is a healthcare-focused investment firm established in 1996 that currently makes investments from its $1.4 billion Vivo Capital Fund IX in private healthcare companies and from its $635 million Vivo Opportunity Fund in public healthcare companies.	10.36%
Prime Success, L.P. Prime Success L.P. is based in George Town, Cayman Islands and focuses on financing and market research.	10.36%
CDH Utopia Limited CDH Utopia Limited is an investment holding company. The company is headquartered in Singapore.	5.27%
1Globe Capital LLC 1Globe Capital LLC se constituyó en 2012 y tiene su sede en Boston, Massachusetts.	2.94%

Source: prepared by the authors with data from https://www.sec.gov/ix?doc=/Archives/edgar/data/0001084201/000156459022016857/sva-20f_20211231.htm

Shareholders who have less than 1% of the company's shares and are executives; Yuk Lam Lo, Simon Anderson, Kenneth Lee, Meng Mei, Nan Wang, Ming Xia, Xiaomei Yin, Qiang Gao, and Jing Li.

Shan Fu, independent member of Sinovac's Board of Directors, does not appear as a shareholder in the financial reports but is managing partner in Vivo Capital, one of Sinovac's main shareholders.

Finances

Sales in the first half of 2021 were 11 billion dollars, compared with 67.7 million in the same period in the previous year.

The company obtained 5.1 billion dollars in net revenues imputable to the common shareholders, or 51.42 dollars per basic share and 44.80 dollars per diluted share, in the six-month period ended June 30, 2021, compared with a net loss imputable to the common of 12.6 million dollars or 0.13 dollars loss per basic and diluted share in the same period in the previous year.

The increase was due to higher sales of CoronaVac® and growth in sales of the company's other products as the Covid-19 pandemic receded in China and vaccination calendars returned to normal. Sales in the first six months of 2021 are not indicative of future trends in sales, because sales of CoronaVac® are expected to fall as the Covid-19 pandemic and competitive pressure from other vaccines increases.

d) Corporate governance

TABLE 19: Management Team

Name	Position	Bio
Yin Weidong	CEO	He has been president, general manager and secretary since September 2003. He previously worked as an infectious disease physician at the China Center for Disease Control and Prevention in Tangshan City, Hebei Province. He is also president of the Zhongguancun Listed Cos. Association. Weidong Yin is President of Tangshan Yian Biological Engineering Co., Ltd.
Wang Nan	CFO	She has been chief financial officer since June 2013. Ms. Wang was vice president of Sinovac Beijing since 2001 and a director of the board of directors since 2009. Wang oversaw business development, investment and clinical research, she was also the first general manager of Sinovac Dalian since its establishment. During her 20 years of service, she was responsible for business development, investment and clinical research. She has actively promoted overseas cooperation, leading domestic and international cooperation negotiations in a series of projects including capital, technology and market, and successfully achieved a series of overseas cooperation. He has also led the clinical research of many projects such as SARS vaccine (phase I), H5N1 (avian flu) inactivated vaccine, influenza vaccine, H1N1 vaccine and EV71 (Vero Cell) inactivated vaccine, and actively promoted the listing of new products. Nan Wang graduated from Peking University with a degree in biology and received a master's degree from the University of International Business and Economics of the People's Republic of China. He received a diploma in financial management from Beijing College for Entrepreneurs, PRC, in 2003.
Gao Qiang	Vice President and COO	He has been chief operating officer since April 2020. He joined Sinovac Beijing in 2002 and has been director of quality control, director of quality assurance, director of R&D and director of R&D at Sinovac Beijing in recent years, general manager of Sinovac LS since 2010 and vice president since April 2016. He has been involved in the development of various types of vaccines, such as influenza vaccine, SARS vaccine, inactivated H5N1 (avian influenza) vaccine, EV71 vaccine, COVID-19 vaccine, ongoing sIPV vaccine and declared 23-valent pneumonia vaccine. He is currently a member of the Beijing Virus Society, a supervisor of the Master of Engineering of the Institute of Microbiology (Chinese Academy of Sciences) and a subject review expert of the Beijing Municipal Commission of Science and Technology. He obtained a master's degree and a bachelor's degree in microbiology from the Agricultural University of the People's Republic of China.
Anderson Simon	Independent Director	He has been an independent director since July 2004. He is a member of the Audit, Compensation and Corporate Governance and Nominating Committees. Mr. Anderson advises companies listed on the North American stock exchanges and private companies in the areas of regulatory compliance, stock exchange listings and financial operations. He is a member of the College of Professional Accountants of British Columbia, having qualified as a chartered accountant in 1986. Mr. Anderson is a director of IBC Advanced Alloys Corp. which manufactures and processes alloys at its U.S. plants.
Lam Yuk	Independent Director	He has been an independent director since March 2006, is a member of the Audit, Compensation and Corporate Governance and Nominating Committees. He is currently the founding chairman of the HK Bio-Med Innotech Association. He is the Honorary Founding Chairman of the Hong Kong Biotechnology Organization. In education, he has been elected as an honorary member of the Hong Kong University of Science and Technology. He is also an honorary professor of several universities in China. Mr. Lo has been intensively involved in various committees of the HKSAR Government. He has served as Chairman of the Food Safety Advisory Council of the HKSAR Food and Health Bureau, Director of the Applied R&D Fund of Hong Kong Co. Ltd, Chairman of the Biotechnology Committee of the Hong Kong Industry and Technology Development Council and Chairman of the Biotechnology Project Selection Committee of the HKSAR Innovation and Technology Fund. In mainland China, Mr. Lo is a member of the Chinese People's Political Consultative Conference in Jilin Province. He was also a consultant to the China Center for Disease Control and Prevention. In the corporate sector, he is chairman of GT Healthcare Capital Partners, and a partner and member of the Investment Committee of Hongsen Investment Management Limited. He is a director of the following listed companies: Luye Pharma Group Limited (2186.HK) and an independent non-executive director of Zhaoke Ophthalmology Limited (06622.HK).

Lee Kenneth	Independent Director	He is an independent director of Sinovac. He has been a member of the Board of Directors since May 2011. In July 2012, the board appointed him as a member of the remuneration committee and the corporate governance and nomination committee. He has over 20 years of experience in private equity investment, corporate finance and business development in China. Mr. Lee is a former partner of SAIF Partners. Mr. Lee is a graduate of Amherst College.
Mei Meng	Independent Director	He has been an independent director since March 2012. He is the chairman of the compensation committee and a member of the audit and corporate governance and nominating committees. Mr. Mei founded TusPark, a science park established by Tsinghua University in 1994, to incubate high-growth companies. He is also the chairman of TusHoldings Co., Ltd. which is engaged in the development, construction and management of TusPark and provides services to TusPark-based companies. TusHoldings Co., Ltd is also involved in venture capital investments in China. Mr. Mei is on the expert panel of China's National Science and Technology Award. He has developed courses on entrepreneurship and startup formation as a professor at Tsinghua University and as an entrepreneur.
Fu Shan	Independent Director	He has served as an independent director since July 2018, when he was appointed as a director by the investors of PIPE. Mr. Fu is a member of the compensation committees. He is a managing partner of Vivo Capital. Vivo Capital is a healthcare-focused investment firm established in 1996 with nearly $7 billion under management. Prior to joining Vivo in 2013, Mr. Fu was a senior managing director in the private equity group and chief representative of Blackstone's Beijing office. He has experience in the Foreign Investment Department of the National Development and Reform Commission of China, the State Economic and Trade Commission, the State Economic and Trade Bureau of the State Council and the Production Bureau of the State Council. Mr. Fu currently serves as a director on the boards of 11 biotechnology companies.
Li Jing	President, Quality and Production	She has been vice president since April 2016. She was appointed quality manager of Sinovac Beijing in March 2015. Since joining Sinovac Beijing in 2003, she has held various roles in the field of production and quality, such as vice director of quality assurance, director of hepatitis A vaccine production department and director of vaccine production at Sinovac Beijing. Ms. Li has successively organized and completed the production and on-site inspection of EV71 vaccine, commercial production and application of 23-valent pneumococcal polysaccharide vaccine. As a project leader, she organized and led the effort to pass the WHO pre-certification evaluation of hepatitis A vaccine, which significantly promoted the export sales of hepatitis A vaccine. (United States Securities and Exchange Commission, 2021)
Fu Shan	Independent Director	He has served as an independent director since July 2018, when he was appointed as a director by the investors of PIPE. Mr. Fu is a member of the compensation committees. He is a managing partner of Vivo Capital. Vivo Capital is a healthcare-focused investment firm established in 1996 with nearly $7 billion under management. Prior to joining Vivo in 2013, Mr. Fu was a senior managing director in the private equity group and chief representative of Blackstone's Beijing office. He has experience in the Foreign Investment Department of the National Development and Reform Commission of China, the State Economic and Trade Commission, the State Economic and Trade Bureau of the State Council and the Production Bureau of the State Council. Mr. Fu currently serves as a director on the boards of 11 biotechnology companies.
Li Jing	President, Quality and Production	She has been vice president since April 2016. She was appointed quality manager of Sinovac Beijing in March 2015. Since joining Sinovac Beijing in 2003, she has held various roles in the field of production and quality, such as vice director of quality assurance, director of hepatitis A vaccine production department and director of vaccine production at Sinovac Beijing. Ms. Li has successively organized and completed the production and on-site inspection of EV71 vaccine, commercial production and application of 23-valent pneumococcal polysaccharide vaccine. As a project leader, she organized and led the effort to pass the WHO pre-certification evaluation of hepatitis A vaccine, which significantly promoted the export sales of hepatitis A vaccine. (United States Securities and Exchange Commission, 2021)

Source: prepared by the authors with information from http://www.sinovac.com/investor/show.php?id=228&lang=en

e) Covid-19 Vaccine

The vaccine CoronaVac® uses inactivated virus, does not require ultra-freezing, and can be stored at temperatures between 2 and 8 degrees centigrade. It has global efficacy of 50.38% and 100% efficacy in severe or moderate cases. The vaccine has been approved for emergency use or under conditional authorization for marketing in more than 50 countries in Asia, Latin America, Africa, and countries in the Middle East. On February 10, 2021, it was authorized for use in Mexico and it is on the WHO list of ten vaccines with emergency use authorization, validated June 1, 2021. (WHO, 2021b)

Sinovac has provided more than 2.8 billion doses of the CoronaVac vaccine worldwide. Of those, at least 300 million doses were donated to different disease control centers in China. The company states that it has annual production capacity of 2 billion doses. (Sinovac, 2021)

ILLUSTRATION 4: Countries that apply the CoronaVac vaccine

Source: (ABC, 2021)

On July 12, 2021, Sinovac Biotech Ltd. Announced the signing of an advance purchase agreement with the Global Alliance for Vaccines and Immunization (GAVI) on behalf of COVAX to supply more than 380 million doses of CoronaVac® Covid-19 vaccines for distribution under the COVAX agreement. Its last report, in January 2022, reported that Sinovac had delivered a total of 84,472,600 doses of the CoronaVac vaccine up to that point. (GAVI COVAX, 2022)

In the map we can see the countries that apply the CoronaVac vaccine in yellow; Southeast Asia is one of the largest markets for Sinovac vaccines. (Sinovac, 2021)

7. SPUTNIK V

a) General information

a. Gamaleya National Research Institute of Epidemiology and Microbiology.

The Gamaleya National Research Institute of Epidemiology and Microbiology was founded in 1891 as a private laboratory, and at present forms part of the Ministry of Health of the Russian Federation and the Russian Direct Investment Fund. The center manages one of the largest virus collections in the world and has its own vaccine production facilities. Since the 1980s the center has led the development of a technology platform based on adenoviruses present in human adenoids, which allowed it to register three vaccines against Ebola between 2015 and 2020 and receive an international patent. Also, the center developed vaccines against influenza and against Middle East Respiratory Syndrome (MERS). (Gamaleya National Research Institute of Epidemiology and Microbiology, 2022a)

b. Russian Direct Investment Fund

The Russian Direct Investment Fund (RDIF) was founded in 2011, in Moscow, Russia. It is a sovereign fund of the Russian government specialized in private capital and risk capital operations, with no involvement in political activities. The fund seeks to make investments mainly in the territory of the Russian Federation and seeks to provide flows of investment, maximize yields, contribute to the modernization of the Russian economy, act as a magnet for talent and new technologies, and conduct transparent processes. Only 20% of its capital may be invested outside the Russian Federation. It has made investments in Turkey, Japan, the countries of the Community of Independent States, China, France, Belarus, Moldova, and Ukraine.

The fund may hold up to 50% of a company's capital stock; notwithstanding, it can hold partial control of other companies that participate in the same consortium. Its projects are developed on 6 lines of investment: improving quality of life, development of infrastructure, substitution OF imports and export potential, regional development, growth of efficiency, and technology development. (Russian Direct Investment Fund, 2022)

The fund participates in more than 90 projects where it has invested around 2.1 trillion rubles (33 billion dollars). The companies in the fund's portfolio employ more than 800,000 workers, with invoicing in an amount equal to 6% of Russia's GDP. In the context of the Covid-19 pandemic, the fund has fomented collaboration with some of the leading international institutional investors, supporting the development of the Russian Sputnik V vaccine, and has invested in large-scale production with other companies. (Gamaleya National Research Institute of Epidemiology and Microbiology, 2022b)

b) Corporate structure

Gamaleya National Research Institute of Epidemiology and Microbiology (2022a)

- Departments: Epidemiology, Medical Microbiology, Natural Focal Infections, Bacterial Infections, Bacterial Genetics and Molecular Biology, Interferons, and Immunology.
- Laboratory for Molecular Epidemiology of Nosocomial Infections (directed by M.Y. Chernukha)
- Laboratory for Non-specific Prevention of Infectious Diseases (directed by T.A. Semenenko)
- Laboratory for Epidemiology of Opportunistic Infections (directed by N.V. Karazhas)

Russian Direct Investment Fund, 2018

- Partnerships: 7 billion USD partnership with Mubadala, 10 billion USD partnership with the Public Investment Fund, 2 billion USD joint investment partnership with the Qatar Investment Authority, joint investment partnership with Mumtalakat, partnership with the TH Group, 2 billion USD partnership with CP Group, partnership with Rönesans Holding, partnership with Fiba Holding, 1 billion USD partnership with IDFC, 2 billion USD partnership with the Indian State Bank, partnership with Tata Power, partnership with the Serbian Development Agency, 2 billion USD partnership in a joint company with DP World,

- Funds: Russia - China investment fund, 2 billion USD; Russia - Japan investment fund, 1 billion USD; Russia - Turkey investment fund, 900 million Euros; joint investment fund, 10 billion USD in RMB with the China Development Bank; Russia - India investment fund, 1 billion USD with the NIIF; Russia - Armenia investment fund; Russia - China regional fund in RMB,

- Platforms and others: Russia - France investment platform, 1 billion Euro Russia – Italy investment platform, Russia - Korea investment platform, 500 million USD Russia - Vietnam investment platform, 1 billion USD Russia - Saudi Arabia technology investment platform, Russia - Saudi Arabia energy investment platform, 1 billion USD automatic joint investment mechanism with the Kuwait Investment Authority, RMB with the Chinese Development Bank, cooperation agreement with the Egyptian Ministry of Investment, investment with the Republic of Kyrgyzstan.

c) Financial structure

Investors

The Law on the Russian Direct Investment Fund, signed by the president of the Russian Federation, Vladimir Putin, states that "[...] The sole shareholder of the corporation is the Russian Federation." (President of Russia, 2016)

Financial data

To date (May 7, 2022) no official information was found on the amount the government of the Russian Federation has obtained from sales of the Sputnik V vaccine under purchase agreements with other countries.

d) Corporate governance

Gamaleya National Research Institute of Epidemiology and Microbiology (2022a)

- Alexander Leonidovich Gintsburg is Director of the Gamaleya National Research Institute of Epidemiology and Microbiology; he is the head of the Department of Infectious Diseases in the Postgraduate School of Medical Education at Sechenov Medical Academy in Moscow. He is the head of the Department of Infectiology at the Postgraduate School of Professional Training in the Sechenov Medical Academy in Moscow. He has been a member of the Russian Academy of Medical Sciences since the year 2000. He serves on the editorial boards of the leading Russian journals of medical microbiology: JMEI and Molecular Genetics, Microbiology and Virology. He is a member of the Presidium of the Pan Russian Society of Microbiologists and Epidemiologists named after I.I. Mechnikov. (Russian Academy of Sciences, undated)

- Alexander Alexandrovich Khovaev (Deputy Director)
- Alexander Vasilievich Pronin (Deputy Director of Science)
- Denis Yurievich Logunov (Deputy Director of Science)
- Sergei Borisovich Cheknev (Deputy Director of Science)
- Tatyana Vladimirovna Domogarova (Deputy Director of Business Administration)
- Georgy Stepanovich Prokhorov (Deputy Director of Biological Safety)
- Lyudmila Kondratievna Kozhevnikova (Scientific Secretary)

Russian Direct Investment Fund; in this company the CEO and members of the Oversight Board will be named by the President of the Russian Federation based on recommendations by the Prime Minister of the Russian Federation. (President of Russia, 2016)

TABLE 20: Board of directors

Name	Position	Bio
Kirill Dmitriev	General Director	He has been General Director and CEO of the Russian Direct Investment Fund since 2011. He is Vice-President of the Russian Union of Industrialists and Entrepreneurs. He is a member of the business councils of BRICS (Brazil, Russia, India, China and South Africa), APEC (Asia-Pacific Economic Cooperation), the Supervisory Board of ALROSA (Russian diamond mining group http://eng.alrosa.ru/), the Board of Directors of Transneft, Rostelecom, Gazprombank, Mother and ChildMDMG and Russian Railways. He started his career at Goldman Sachs and McKinsey & Company.
Anatoly Braverman	First Deputy General Director	He was head of the Asset Development and Acquisitions Department of Gazprom Neft, one of Russia's largest oil producers. For more than three years he worked at LUKOIL, where he was involved in a series of transactions with a total value of more than $2.5 billion: the acquisition of Europa-Mil, the acquisition of a 49% stake in ISAB Oil Refinery (Italy) from ERG S.p.A, and the purchase of a 45% stake in TOTAL Raffinaderij Nederland N.V. from Total S.A.
Tatiana Plaksina	First Deputy Director General	She was vice-president of Renaissance Capital. She was responsible for financial supervision, regulation and foreign exchange control at the Central Bank of the Russian Federation. She was executive secretary of the Subcommittee on Interbank Cooperation of the Russian-Chinese Commission for the preparation of regular meetings between Heads of Government.
Tagir Sitdekov	First Deputy Director General	He was Managing Director at A1 Investment Company (an investment arm of Alfa Group). He collaborated in projects involving major international co-investors such as BBH Holding, Deutsche Bank and Goldman Sachs. He was CFO of Sochinskaya TPP, a subsidiary of RAO UES of Russia, where he supervised the construction of a new 75 MW power plant. He worked at Creditanstalt, an investment bank that is part of the UniCredit Group, where he closed several transactions in the telecommunications sector, including the sale of Indigo Mobile Group's GSM assets to MTS.

Vladimir Primak	Director	He was a Managing Director in the Private Equity and Special Situations Group of VTB Capital. He headed Alpcot Agro. He worked in the investment banking divisions of JP Morgan, Rothschild and Renaissance Capital in Moscow and London.
Ilya BakhturinDirector of Special Investment Situations	Director of Special Investment Situations	He worked in investment and corporate finance for Baring Vostok, Goldman Sachs, JP Morgan, McKinsey and Ernst & Young.
Ekaterina Kuznetsova	Chief Financial Officer	She was CFO of Alfa Capital Partners and of one of the companies of the MDM Group, based in Cyprus. She was responsible for the financial and accounting departments of more than 60 group companies. She worked as an accountant and auditor for three international auditing firms, including KPMG.

Source: Prepared by the authors with data from the Russian Direct Investment Fund, 2018)

e) The Sputnik vaccine

The Sputnik V vaccine was developed by the Gamaleya National Research Institute of Epidemiology and Microbiology with funding from the Russian Direct Investment Fund; it was the first vaccine candidate registered to combat the disease Covid-19 caused by the SARS-Cov2 virus. The vaccine was developed from a platform of human adenoviral vectors that cause the common cold. The adenovirus gene was removed and genetic information from the outer protein layer of SARS-Cov2, the so-called "spikes" which form its corona, is inserted in its place. The vaccine uses an heterogeneous booster approach, based on serotypes Ad5 and Ad26 of the human adenovirus, for two injections in the vaccination process. Insertion of the adenovirus is safe for the human body and stimulates a strong reaction with the aim of triggering immunity to the disease. Phase 1 and 2 clinical trials of the vaccine were completed August 1, 2020, in Russia, and phase 3 clinical trials were also conducted in the United Arab Emirates, India, Venezuela, and Belarus. (Gamaleya National Center of Epidemiology and Microbiology 2022d)

In the provisional analysis of efficacy in a randomized, double blind, placebo controlled clinical trial with 19,866 volunteers (of whom 14,964 received the vaccine and 4,902 placebo), treatment with two doses of Sputnik V, administered at a 21 day interval, showed 91.6% efficacy against the disease Covid-19. In the first week after vaccination there were no significant differences in protection against severe cases between the vaccine and placebo groups, whereas in the 7 to 14 day period the vaccine's efficacy increased to 50%, in the 14 to 21 day period to 74.1%, and to 100% from day 21, providing complete protection against severe cases. This vaccine is distinguished by having low production cost and basic logistics, storage temperature is in the interval of 2°C to 8°C, which allows it to be stored in conventional refrigerators without the need to invest in additional infrastructure. (Gamaleya National Center of Epidemiology and Microbiology, 2022d; Russian Direct Investment Fund, 2022)

In the year 2020, Russia started mass production of the Sputnik V vaccine. For 2022 more than 14 countries have announced that they will produce the vaccine, among them: China, Brazil, Mexico, Egypt, Iran, Italy, South Korea, Argentina, Kazakhstan, Belarus, Serbia, Turkey, and Vietnam. Prices will be determined by factors like costs of production and logistics; in some cases expenses will be covered by national health insurance programs; however, it is estimated that the price will not exceed $10 USD per dose. Since 1997, the center has been headed by Alexander Gintsburg, a member of the Russian Academy of Science. (Gamaleya

National Center of Epidemiology and Microbiology, 2022c) Between 2020 y 2021 agreements were signed for sales of 639 million doses with governments of 48 countries and the United Nations Children's Fund, for the Sputnik V and Sputnik Light vaccines. At present it has emergency use authorization in 75 countries; it is not included in the emergency use list issued by the World Health Organization. (UNICEF, 2022)

IV Conclusions

In a crisis of the magnitude of that created by the Covid-19 pandemic, those who have power use it to advance their interests. As we see in this report, the companies that produce vaccines applied in Mexico continued to increase their profits to the detriment of people's right to health. The government, in its eagerness to guarantee access to vaccines for the population, accepted the terms imposed by pharmaceutical companies and concealed information on clinical trials, emergency use authorizations, money paid to companies, and documents related to contracts. This information needs to be known to protect people's rights; it is the only way to combat fake news and vaccine hesitancy and avoid risks of corruption and conflicts of interest to the greatest extent possible. In conclusion, this investigation allows us to unequivocally affirm that:

• Mexico agreed to participate in clinical trials of vaccines, which allowed it to negotiate early agreements with companies to acquire vaccines. The documents from the clinical trials have been reserved.

• Mexico accepted the confidentiality clauses requested by the pharmaceutical companies. We have no way of knowing how much public money each company received for its vaccine. Only the contract with the COVAX mechanism publishes the contract price. Also, legislative amendments were made to expedite payments and mechanisms to import and export vaccines; in other words, procedural hurdles were removed for the companies while at the same time assuring them that the information would not be made public. This could help companies to continue to profit from people's need to receive the vaccine.

• All the pharmaceutical companies that have contracts with Mexico have increased their sales and earnings during the pandemic. The main beneficiaries of those earnings have been the persons who control those companies and the investment funds behind them, prominent among them: The Vanguard Group; Blackrock Inc.; Wellington; Norges Bank Investment Management; State Street Global Advisors, Inc.; and Geode Capital.
We cannot overlook the fact that, despite advances in the areas of equality and inclusion that these companies report to their investors, a majority of those who chair the boards of directors or serve as CEOs in the companies are men.

• The principal mechanisms of corporate capture that have been detected in the process of negotiation and acquisition of vaccines by Mexico are:

- Legislative interference: Mexico amended its laws to expedite payments for vaccine manufacturers and amended the General Import and Export Tax Act to make import and export of vaccines tax free (Ruiz et al, 2021).

- Concealment of information: at the request of the pharmaceutical companies only 5 of the 7 contracts Mexico signed with the pharmaceutical companies and the Gavi Allian-

ce to acquire vaccines were published partially. None of the agreements for donation of vaccines with the US government have been published. All the contracts signed by Mexico contain confidentiality clauses which "impose on the Ministry of Health the obligation to strictly safeguard confidential information pharmaceutical companies have disseminated as such," the Ministry of Health has stated in response to a request for information made by PODER.[6]

- Use of scientific information that favors the companies: In the president's morning press conferences, positive results from clinical trials of vaccines conducted in Mexico were presented every Tuesday, and the authorities announced when emergency use authorizations were granted for new vaccines; however, although we requested scientific documents from both the clinical trials and the recommendations and authorizations issued by the COFEPRIS, they were withheld or not released by the responsible authority.

- Use of judicial institutions to protect the companies: Although the INAI has obliged the authorities to publicly release information on studies, authorizations, contracts, and public funding for Covid-19 vaccines, the government's strategy has been to judicialize these cases, moving for the Supreme Court to revoke the resolutions of the body created to guarantee the constitutional right to information, to protect the companies with the excuse that breaching the confidentiality clauses would endanger the national vaccination strategy and it is therefore a matter of national security. Although there are several cases pending resolution, in its rulings on two appeals claiming national security over contracts for acquisition of vaccines against the SARS-CoV-2 virus (RRSN 6/2021) and the respective (RRSN 3/2021) proofs of payment, the Court accepted the argument of the Legal Counsel to the Federal Administration and decided to protect the government from the potential consequences of breaching the confidentiality clauses requested by the companies.[7]

Concrete measures are needed to mitigate corporate capture and prevent it from affecting human rights. Government, companies, and civil society should work to develop a vaccine against corporate capture, and that will be accomplished only with:

- Disclosure and transparency of public and private information on vaccines.

- The Mexican government must comply with the terms and conditions established in the Constitution, specifically Article 6, and the General Law on Transparency and Access to Information and release the contracts to the public without restrictions. Most of the contracts have concluded and there is no reason, other than the threat of disputes with the companies in courts of arbitration, not to release them. The information on the contracts should be available on the Compranet platform.

- The government should disclose the amount of federal funds used to pay for all the vaccine doses it has acquired.

- The information on emergency use authorizations and clinical trials conducted in Mexico should be made public.

[6] Response to the Request for Access to Information submitted to the Ministry of Health with folio number 0001200018221 on February 23, 2021.
[7] https://www.internet2.scjn.gob.mx/red2/comunicados/noticia.asp?id=6899

- Agreements for vaccine donations to the Mexican government should be accessible to the public.

- The State should be a regulator for the public interest and resistant to capture.

- The Mexican government should not accept ever again terms imposed by companies that violate its laws and regulations, especially when they protect basic human rights.

- Access to public healthcare systems should be expanded.

- Strong, mandatory regulations on companies.

- We recommend working on legislation on mandatory corporate human rights due diligence, to ensure that they are respecting human rights at all levels of their value chain in relation to vaccines.

- Stronger mechanisms are needed to prevent conflicts of interest and regulate legislative interference by companies.

- A public registry of beneficial ownership and politically exposed persons in companies that have contracts with the Mexican government should be created.

- Legislation should not be amended to guarantee companies' profits when negotiating acquisitions on which people's health and lives depend.

- Organized and vigilant civil society.

- Civil society organizations (CSOs) should continue to demand that the government guarantees and protects human rights over corporate interests and profit.

- The information CSOs have obtained from their work on the process of vaccination and the pandemic in Mexico should be made available to the largest possible number of people.

- Companies should fulfill their responsibility to protect human rights and not cause harm and if they do, repair the harm caused.

- Companies should stop putting their profits above people's health and lives.

- Companies should honor their commitment to respect human rights, share technology, set aside restrictive patent mechanisms, and guarantee equal access to vaccines, diagnosis, and treatment for all.

- They should publish all information on contracts signed with governments and international institutions and not condition governments with confidentiality clauses and disclaimers of liability that violate people's rights.

- Business as usual is no longer acceptable. People's lives should come before companies' profits.

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