Department of Business and Management - Master's Degree in Corporate Finance

Chair of Financial Statement Analysis

A simulation of the IPO process

The DoorDash case

Prof.ssa Magnanelli Barbara Sveva

SUPERVISOR

Prof. Paolone Francesco

CO-SUPERVISOR

Mosca Domenico 721411

CANDIDATE

ACADEMIC YEAR 2020/2021

Table of Contents

Acknowledgements

I would like to thank Professor Barbara Sveva Magnanelli, who inspired me while attending the lectures in the Financial Statement Analysis course. She shared Her knowledge on many important issues, allowing me to analyze the main corporate issues with a more critical eye, making a relevant contribution to my academic and personal development.
I wish to thank my supervisor Luigi Nasta for the support He gave me while writing this thesis.
I also want to thank the team of Professors I met at LUISS Guido Carli and during my exchanges at BI Norwegian Business School and Warwick Business School. The meetings I had with each of them have always inspired in me deep admiration for the precision, clarity, and availability with which the different disciplines were treated.
I also would like to thank my mother and the fate that gave her to me. For what she taught me and for the path she allowed me to follow. She kept my dreams as a boy and was an unparalleled supporter of their realizations.
I also thank my sister Caterina who believes in her projects and mine and for the affection that fills me every day, despite the distance.
Finally, I thank my grandparents for their moral support and my whole family and friends. My most sincere gratitude goes to all of them.

Introduction

Nowadays we live in a globalized world, where the economic, social, and cultural interconnections among countries and people are becoming stronger and more evident. Even though it is commonly believed that the word globalization was coined by Theodore Levitt, who published an article entitled "Globalization of the Markets" in the Harward Business Review in 1983, globalization started in the second half of the 19th century. The year 2020 allows us to understand how strong globalization is.

In December 2019 a new disease, caused by COVID-19, was affecting the Chinese population. The following month every country in the world registered at least one citizen hurt by the new virus, and in few weeks the situation was critical enough to force the Director-General of the World Health Organization (WHO) to declare, on 30th January 2020, the outbreak of COVID-19 as an international public health emergency[1].

Because of the pandemic each country introduces restrictions on economic and social activities, businesses were forced to temporarily close and only necessary movements were allowed. According to research by OECD, the impact of the global spread of COVID-19 has increased market risk aversion in ways not seen since the global financial crisis and stock markets have declined over 30%.[2]

Restrictions affect small-medium enterprises (SME) as well as public companies. Indeed, research by McKinsey[3] shows that several companies lose part of their market value, for example, the British online bank Monzo lost 40% of its value, the P2P lender[4] RateSetter has been acquired for £12 million despite its previous valuation was £250 million. The outbreak of COVID-19 had several consequences even to the "unicorn"[5] Airbnb that was forced to delay its initial public offering (IPO).[6]

The spread of virus has reshaped people's behaviors, habits, and relationships, and this is the reason why besides struggling companies we can see firms able to boost their revenues and succeed. For example, the tech sector has been able to exploit the new needs of people, and

[1] Source: https://www.who.int/news/item/27-02-2020-a-joint-statement-on-tourism-and-covid-19---unwto-and-who-call-for-responsibility-and-coordination

[2] Source: https://www.oecd.org/coronavirus/policy-responses/global-financial-markets-policy-responses-to-covid-19-2d98c7e0/

[3] Source: Webinar on the effect of COVID-19 on the fintech sector, held by McKinsey at BI Norwegian Business School.

[4] A P2P lender is a platform that directly connects borrowers and savers. Borrowers could be individuals as well as businesses (source: *Fintech* course attended at BI Norwegian Business School).

[5] Private companies whose value is more than $1 Billion are often defined as unicorns (source: https://www.investopedia.com/terms/u/unicorn.asp).

[6] Source: https://fortune.com/2020/11/16/airbnb-ipo-initial-public-offering-coronavirus-impact/

companies such as Amazon, Apple, and NVIDIA had extraordinary returns in 2020.[7] Within the tech industry, impressive has been the performance of the online food delivery industry and this is the reason why this work will focus on this sector, especially on DoorDash, that despite the outbreak of the virus has been able to get listed.

The work will be divided in three chapters.

The first chapter will focus on IPOs from an academic point of view, also providing some insights to alternative solutions such as direct public offerings, crowdfunding and initial coin offerings.

The second chapter will analyze the online food delivery market from a strategic and economic point of view. As we will see, it is inappropriate to talk about this market globally, therefore a focus on main markets will be provided. The chapter ends with a fintech idea I developed during my experience in Norway at BI Norwegian Business School.

The third chapter will focus on DoorDash and its IPO. Moreover, a simulation of the valuation will be provided.

The work will end with a conclusion where there will be a discussion of the main findings and general thoughts on the online food delivery industry.

[7] Source: https://www.nerdwallet.com/article/investing/best-performing-stocks (last updated 11/12/2020).

Chapter 1 – Initial Public Offering

1.1 Introduction

In this chapter, the focus will be on the Initial Public Offering (IPO) from an academic point of view.

After explaining what is meant by IPO, last trends will be analyzed, and its pro and cons discussed. A paragraph on the IPO process will give an overall picture of all steps required to get a company listed, and pricing method alternatives will be debated as well. The chapter will end through a brief analysis of two alternatives to the IPO: Direct Public Offering (DPO) and crowdfunding.

1.2 What is an IPO?[8,9]

IPO stands for Initial Public Offering, and it is the process through which a company gets listed on a public Stock Exchange. It is initial because it is the first time the company gets through this process[10], public because it is an offer for the public, and offering because it is the process by which the shares of companies are sold.

Before the IPO, the company is private and is not listed in a stock exchange, through the process the firm gets listed and becomes public which means that the share capital is opened to the public (institutional investors, retail investors, sovereign wealth funds, etc.).

We can distinguish between primary and secondary IPO. In both cases the company gets listed, but the origin of the shares sold in the market is different.

In the primary IPO, the company issues new shares, and this brings an increase in the share capital. Generally, it is done in situation where the company needs financial resources and current shareholders do not want or cannot invest more into it.

On the contrary, an IPO where shares of incumbent shareholders are sold is defined as a secondary IPO and the proceeds of the process go directly to selling shareholders and do not increase the corporation's share capital. In the case of a secondary IPO, there is a lot of focus

[8] Main source: Fleuriet, Michel. Investment Banking Explained: an Insider's Guide to the Industry. New York [etc. McGraw-Hill, 2008. Print.

[9] Main source: Liaw, K. Thomas. The business of Investment Banking: a Comprehensive Overwiew /. Hoboken, N.J.: Wiley, 2011. Print.

[10] Unless the company was listed, then there has been a delisting, and once again an IPO.

on the stake held by the management. Indeed, given the asymmetries of information between managers and investors regarding the company, the disposal of big stakes by the company's management is not perceived as a good signal by the market.

Primary and secondary IPOs are the extremes, what usually happens is a combination of the two. Indeed, new shareholders would like at least part of their investments to be used to increase the company equity, and this is the reason why secondary IPOs are often avoided. At the same time, it frequently happens that incumbent shareholder would like to monetize totally or part of their investments in the firm, therefore IPOs are generally a mix of primary and secondary.

1.3 IPO pre-requisites and trends

There are some characteristics that a company that wants to be listed should have to be sure there is enough interest by the market, however, those characteristics are not mandatory.

It is important that the firm operates in a sector that is attractive for investors, therefore it should be a growing one, where there is not a market leader and ideally where market entry barriers are high and exit barriers are low. Talking about the sector, it is worthy to highlight the importance of ethics for the attractiveness of the sector. Indeed, it is less likely to see an IPO of companies operating in a high polluting industry or in the war one.

It is vital for the company to have a strong competitive position, but it is even more important that it is able to maintain or obtain it in the future. Indeed, through the IPO process, new investors will enter in the shareholding of the company, and they are interested in its future rather than its past.

For the same reason, it is key that the company has a strong financial performance, but it is even more essential that the company is going to have it in the future. Indeed, when Amazon got listed it had huge losses[11], but the market recognized how disruptive it was, and there was a lot of interest in its IPO.

Moreover, the higher is the growth and visibility of the company's earnings, the higher will be the interest that investors have in the firm, and the higher will be the likelihood of a successful IPO.

Corporate governance is another characteristic that may influence the market interest in the company getting listed. If the corporation has stable and strong governance and respects the best practices of corporate governance, the market will show higher interest.

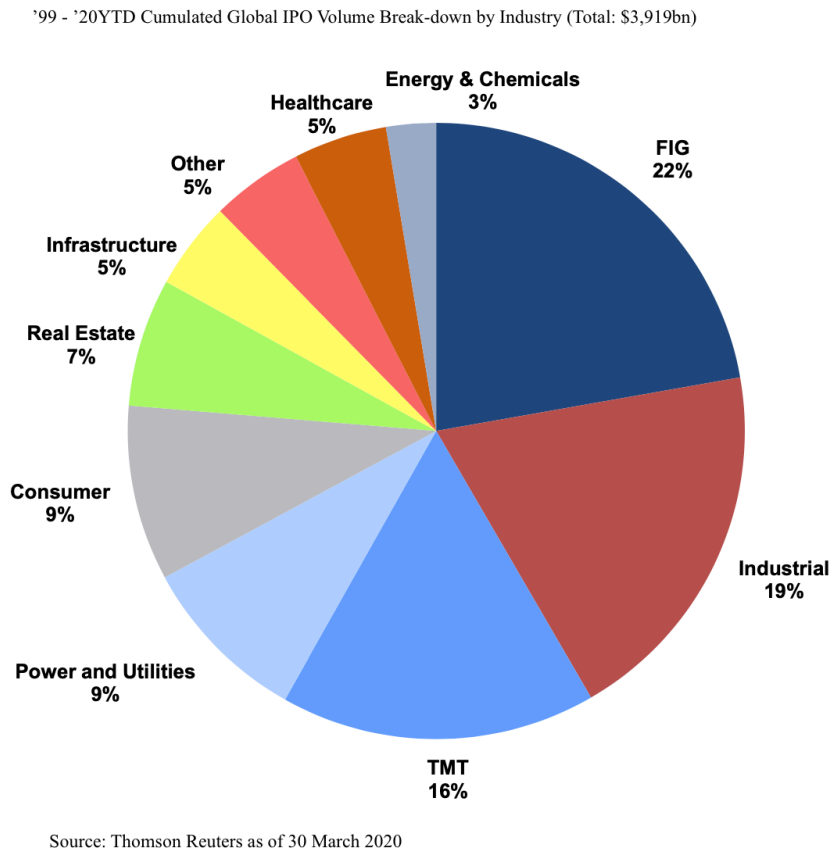
[11] Source: https://www.vox.com/2017/5/15/15610786/amazon-jeff-bezos-public-company-profit-revenue-explained-five-charts

Finally, the free float should be high enough to avoid liquidity discount.

As said before the attractiveness of the sector is an important driver for the success of the IPO, it is unusual to see IPOs of companies that are not social or environmentally friendly, and ethics is increasingly a driver for economic investments, however, we see listed companies for almost every sectors.

The following pie chart[12] shows the cumulated global IPO volume breakdown by industry from 1999 to 2020.

Chart 1.1



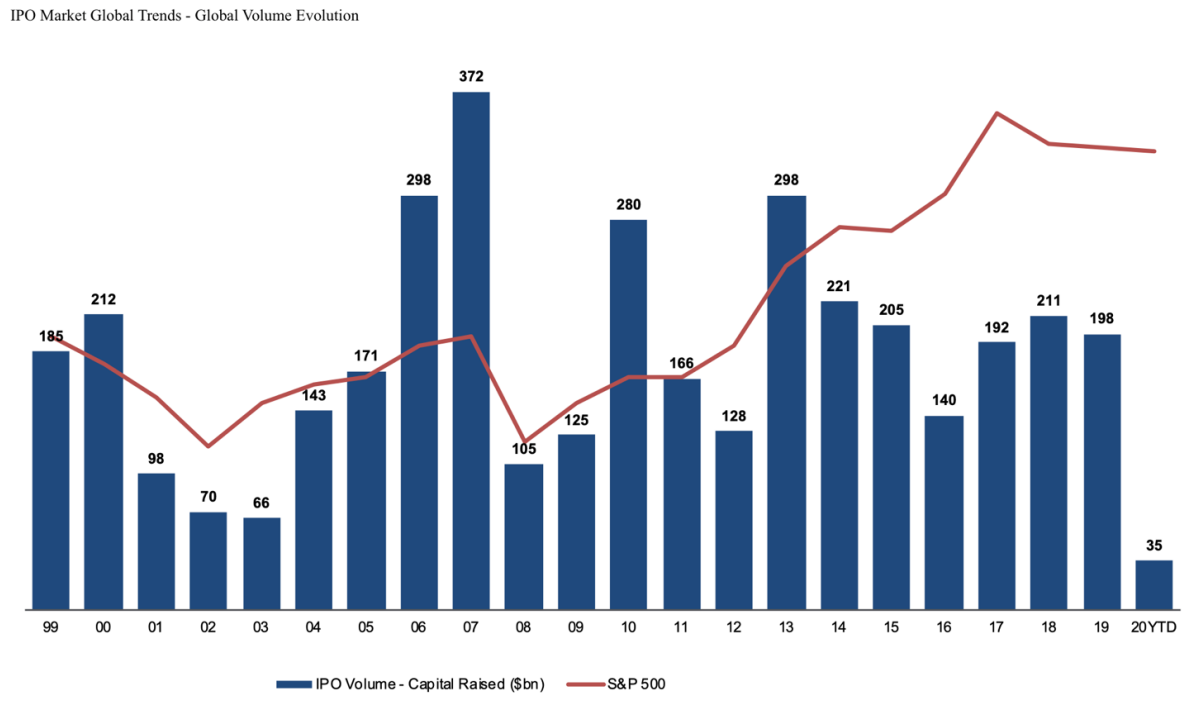
As we can notice Financial Institution Group (FIG), industrial and Telecommunications, Media and Technology (TMT) represented 57% of total IPO by volume in the last 20 years. The picture supports the fact that there have been IPOs in almost every sector, but their level in polluting sectors is considerably lower, as the 3% in Energy & Chemicals strongly suggested. Talking about trends, it is worthy to highlight the relation between the number and volume of

[12] Source: Thomson Reuters as of 30 March 2020 (picture from *M&A and Investment Banking* course at LUISS Guido Carli).

IPOs and the performance of the stock market index; research[13] in the UK market shows that the volatility of the stock market plays the most important role for going public. In addition, La Porta et al. studied in 1997 the impact of economic conditions on the number of IPOs, and they discovered that "the GDP growth rate has a statistically significant effect on the number of IPOs […]; the coefficient estimates indicate that a one percentage point higher historical growth rate raises the number of IPOs by about 0.2".[14]

The positive correlation between the stock market and the volume of IPOs can be also caught by the chart 1.2[15].

Chart 1.2



Source: Thomson Reuters as of 30 March 2020

As we can notice from the histogram, when the S&P500 had negative performance, the volume of capital raised through IPO decreased. This happens both during the dot-com bubble and the financial crisis of 2007-2008. A possible explanation is that when the market is bear, volatility is higher, making investments riskier. At the same time, in bear period companies tends to lose value, therefore if it is not necessary, they prefer to avoid getting listed in turbulent and

[13]Source: Angelini E., Foglia M., 2018. The Relationship Between IPO and Macroeconomics Factors: An Empirical Analysis from UK Market.

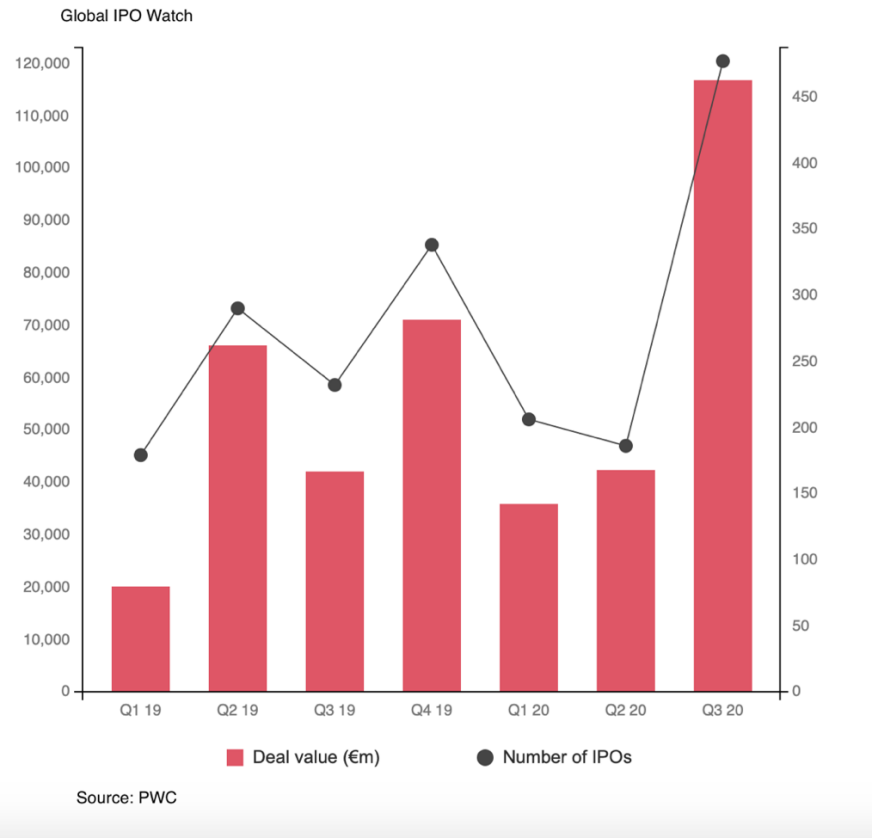
[14] La Porta R., F. Lopez-De-Silanes, A. Shleifer, R. W. Vishny, 1997. Legal determinants of external finance.

[15] Source: Thomson Reuters as of 30th March 2020 (picture from *M&A and Investment Banking* course at LUISS Guido Carli university).

depressing periods.

The trend highlighted has characterized the year 2020 too. The outbreak of COVID-19 and the restrictions adopted by governments pressured down the number and the value of IPOs both in Q1 and Q2, as suggested by the following histogram[16]. However, after a strong relaunch in the equity market following loose restrictions by governments worldwide, Q3 saw a relevant increase in the number and value of IPOs[17], performing better than previous years.

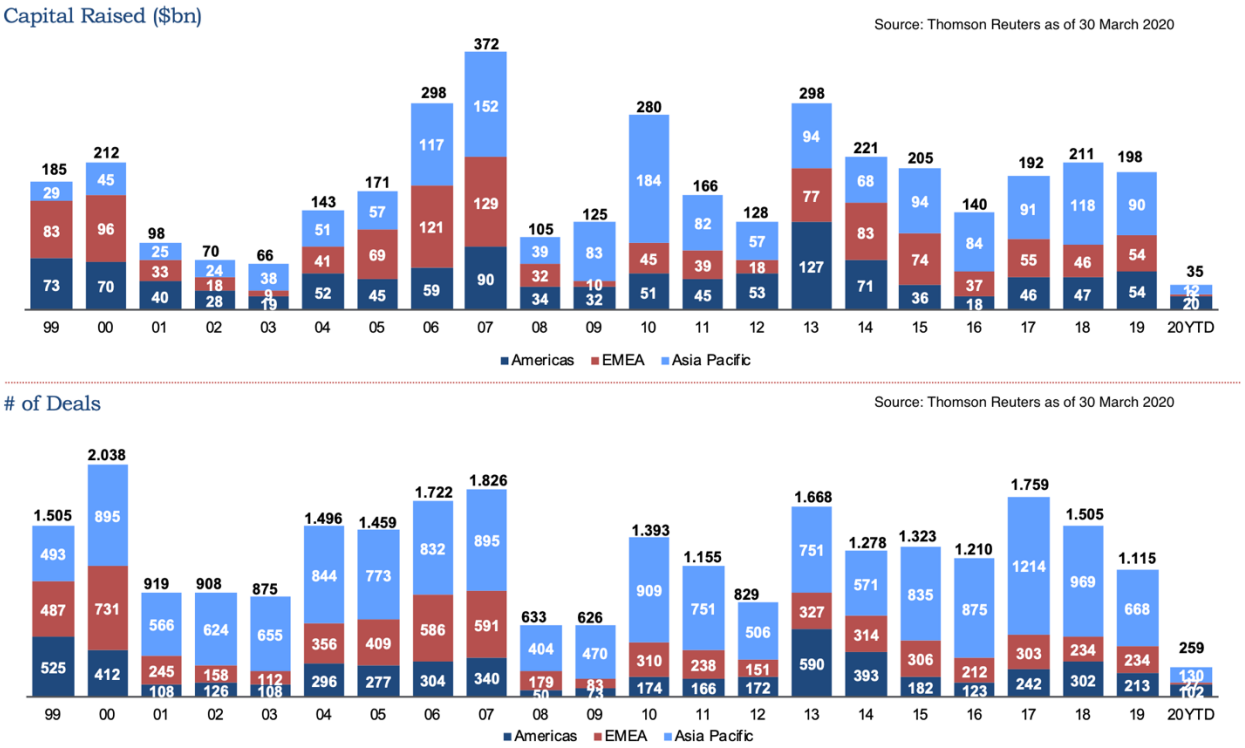
Chart 1.3



It is also important to understand IPOs' trends from a geographic point of view. The following picture helps understand the volume of IPOs' activities in three different areas: Americas, EMEA, and the Asia Pacific.

[16] Source: Global IPO Watch by PWC (https://www.pwc.com/gx/en/services/audit-assurance/ipo-centre/ipo-journey/ipo-watch-data-explore-exchange.html).
[17] Source: Global IPO Watch by PWC (https://www.pwc.com/gx/en/services/audit-assurance/ipo-centre/global-ipo-watch.html).

Chart 1.4



As suggested by the chart, the USA, and the Americas still play an important role, but the dominant area in the last years in terms of number and value of IPOs has been the Asia Pacific. There are three potential reasons for this trend. First, it seems there is a positive correlation between IPOs' activities and GDP growth, and the Asia Pacific is the area which grew the most in the last years. Moreover, most of the American companies that have the "pre-requisite" to be listed are already listed, whereas in the Asia Pacific there are still a lot of companies that have the characteristics to get listed but they are still private. Finally, another potential reason why we see less activity in the Americas than in the Asia Pacific is the fact that a lot of US companies, especially tech start-ups, have been able to raise a lot of financial resources through private equity funds, without listing, as suggested by the large number of US unicorns. The increasing relevance of the Asian market is also stressed by the fact that 6 out of the top 10 IPOs by capital raised have occurred in Asian companies[18], and among them only one has been listed in an American stock exchange[19].

[18] Source: Thomson Reuters as of 21 March 2019.
[19] Alibaba is the only Asian firm in the rank that got listed in a non-Asian exchange (NYSE).

1.4 Pro and Cons of an IPO[20]

The IPO is a crucial moment for the life of a company because it changes the way it relates to the external world. A listed company can find financial resources more easily than a private one, but at the same time, it is subject to stricter rules.

The advantages of an IPO can be divided into three areas: financial, company profile, and liquidity.

From a financial point of view an IPO increases the share capital of the corporation (unless it is a secondary one), the company can easily increase equity in the future through additional stock offerings, reaching greater flexibility for its capital structure[21]. The greater financial flexibility allows the listing company to overcome borrowing constraints and increase bargaining power with banks[22].

The IPO has positive consequences on the company profile as well. It increases investors' attention to the firm, allows the company to attract and retain key employees through stock option plans and other equity incentives and increases the company's reputation. Talking about reputation, it is interesting to notice how the choice of the stock exchange can impact the company's reputation. Indeed, research in 1994, showed that listed companies that announced to list also in the NYSE got on average a 5% abnormal return.[23]

Another important advantage of the initial public offering derives from the fact that the shares of the firm become more liquid. Shares become listed in the stock exchange, allowing shareholders to easily change their exposure to the firm's share capital. Moreover, shares become a sort of traded currency that can be used in M&A deals.

On the other hand, there are several disadvantages linked to the IPO, some of them are connected directly to the process, others are bounded to the life of a public company. One of the main disadvantages for incumbent shareholders is the dilution effect that the IPO has on their control[24]. The IPO allows the company to get listed and open its share capital to the public, this creates one of the most discussed topics in corporate governance, which is the

---

[20] Main Source: Pagano, M., Panetta, F. and Zingales, L. 1998. Why do companies go public?, An empirical analysis. The Journal of Finance, Vol. 53:1.

[21] Capital structure is the proportion of debt, equity, and other securities of the firm (source: Berk, Jonathan B. and Peter M. DeMarzo. Corporate Finance. Fourth edition, Global edition. Harlow, England [etc. Pearson, 2017. Print.).

[22] Rajan, Raghuram G., 1992. Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt, Journal of finance 47, 1367-1400.

[23] Kadlec, Gregory B., John J. McConnell, 1994. The effect of market Segmentation and Illiquidity on Asset Prices, Journal of Finance 49, 611-636.

[24] In the case of primary IPO there is always control dilution, whereas in secondary IPO control dilution is only for selling shareholders, that actually want it since they are selling shares.

separation between ownership and control.

The separation between ownership and control is the phenomenon affecting large corporations with a fragmented ownership, where shareholders have little or no direct control over managers.[25] Between shareholders and managers, there is a principal-agent relation, where managers are the agents and should act in the interest of the principal (shareholders). Between them, there are asymmetries of information, managers know much more about the company than shareholders, and the former can try to pursue their own interests instead of the latter's ones.

Even though public companies can be hurt by this phenomenon, it is worthy to note that some possible remedies are based on the fact that the company has listed shares. First, stock performance can be used to monitor managers' work, a drop in the share price is a signal for shareholders on some potential issues on corporate governance. Moreover, the stock market provides a device for monitoring managers' discipline through the danger of a hostile takeover. Indeed, if a company is performing badly due to wrong decisions by the management, the value of the company decreases and investors could find profitable to obtain control of the company, replace its management and sell the firm at a higher valuation. Another disadvantage of the IPO is the length and the resources that are required to be listed. The IPO is time and resource consuming, and once the company is listed there are strict rules that it must comply with. The IPO process is expensive due to high fees and the initial underpricing.[26]

Moreover, listed companies have more disclosure duties than private ones, this is positive for shareholders and investors because there is more transparency on the firm's numbers and activities, but at the same time managers must spend time in public relations and the corporation could be forced to publish data that it would prefer to keep secret for competition reasonings. Indeed, the loss of confidentiality as a deterrent from getting listed has been recognized for the first time by the associate Professor of Finance in the University of Utah, Tim Campbell in 1979.[27]

After the listing, the company's general and administrative costs may increase due to the periodic reporting and information required.

From the cost side perspective is interesting to notice that many expenses connected to the IPO

[25] Stephen G. Marks, 1999. The Separation of Ownership and Control.
[26] See §1.8.
[27] Campbell Tim, 1979. Optimal Investment Financing Decisions and the Value of Confidentiality, Journal of Financial and Quantitative analysis 14, 913-924.

do not increase with its size, therefore small companies are less likely to be public than bigger ones.
To summarize, there are several pros and cons that are connected to an IPO, therefore before getting listed the company should analyze them carefully.

1.5 The process[28]

The IPO process takes on average 4 to 6 months[29] and it can be divided into a private and public phase. In the private phase, the company organizes all the documents and steps that are required to be public. Then, there is the public phase, where the company announces its intention to be listed and target potential investors.

1.5.1 Private phase

The private phase is divided into the preparation of the IPO, preliminary valuation, and analyst presentation.

1.5.1.1 Preparation of the IPO

In the preparation of the IPO, the company does the preliminary work which is essential to start the subsequent steps required in the IPO process.
The firm will appoint the advisors[30] needed for the process.
First, it requires a sponsor that leads all the players involved in the listing procedure and coordinates their roles. Sometimes the firm willing to be listed holds "beauty parades" with several sponsors, to understand with whom, it would like to operate. It is important to point out that also sponsors would like to know about the company's business and characteristics before agreeing on the listing. The sponsor is not the only advisor appointed; indeed, the firm needs to identify other players such as bookrunners, lawyers, accountants, and consultants. There will be a kick-off meeting which is essential to make sure that all actors involved understand the structure of the process, and the timetable is defined. Generally, an IPO requires between 4-6 months, but the timetable depends on market conditions, the complexity of the deal, and other internal and external factors. After the initial meeting, there are usually weekly meetings to ensure that all the players are updated on the process and its issues.

[28] Main source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.
[29] Source: https://www.cnbc.com/2019/03/23/heres-what-you-should-know-about-the-ipo-process.html.
[30] A lot of players are involved in an IPO, their roles are discussed in §1.6.

Following that, there will be a due diligence phase, whose main goal is to guarantee the accuracy and truthfulness of the prospectus as well as identify potential issues connected to the company. Due diligence will focus on three different areas: business, financial, and legal. The sponsor and bookrunners perform the business due diligence to focus on the company's business strategy. Bookrunners will also focus on the financial due diligence with the aim to verify the past financial performance of the firm. Legal consultants focus on legal due diligence, studying litigations and relevant contracts.

A crucial step within the preparation for the IPO phase is the creation of the prospectus and other legal documents. The prospectus is a legal document as well as a marketing one. It must be approved by an authority[31], otherwise, the company cannot be listed. The drafting of this document is done by the company's lawyers with the assistance of bookrunners and sponsor on the marketing story side. It includes several elements such as the business description, the financial position, description of the offer, risk factors, etc.

1.5.1.2 Preliminary valuation

In this phase, there is a discussion between the firm and investment banks regarding its valuation. This valuation is not very relevant since it is only preliminary, and it could be different from the final one. However, in case there is a big gap between the valuation provided by investment banks and the one estimated by the firm, the latter can decide to stop the IPO process. If this is not the case, there will be the following step, which is the analyst presentation.

1.5.1.3 Analyst Presentation

Reached this stage, due diligence is almost completed, and it is common practice for senior management to meet with the research analyst employed by the bookrunners before the beginning of the public phase. At the same time, research analysts publish pre-deal research on the firm.

The analyst presentation usually takes several hours, depending on the complexity of the deal, and it is at the basis of the analysts' valuation. The contents of the analyst presentation must be consistent with the information provided in the prospectus.

Crucial is also the pre-deal research, which is written according to data provided in the analyst presentation and generally requires 3-4 weeks following the analyst presentation for the first

[31] Consob in Italy, UKLA in the UK, SEC in the USA.

draft. During the preparation of this document, the research analysts should be in contact with the company. The pre-deal research is an investor education document, is independent of the company and it is legally unconnected with the offering. It provides, the equity story behind the valuation.

1.5.2 Public phase

The public phase is divided into investor education, book building, and aftermarket.

1.5.2.1 Investor education

Investor education is the process through which the abovementioned analysts propose the story to investors using the research they have written; it is usually done in large IPOs before the management roadshow.

First, there will be the Announcement of the Intention To Float (AITF), which is a public announcement where the company provides information about its willingness to be listed. Large companies carefully develop a PR campaign to promote the firm and its IPO. The research (pre-deal research) will be published, and key investors targeted. This process is vital because allows the global coordinator/sponsor and the research team to educate investors and receive feedbacks which are important because are used to create a valuation range. In this phase, the gap between the max and the min should not be higher than 20-25%. This step is crucial also to assess the initial reaction to the story selling and determine who are the main investors to target in the management roadshow.

1.5.2.2 Book building

Once the price range has been agreed and the prospectus issued, there will be the management roadshow. It consists of a series of meeting with potential investors, and generally, it includes a formal presentation by the company's CEO and CFO. There could also be one-on-one meetings with key investors.

The day in which roadshows are started is usually the day in which the books are opened to take investors' orders. Book building is indeed the process by which the book containing investors' orders is built. It is a list of investors that want to buy the shares, and each investor will provide a quantity and a price, since the banks do not provide the IPO price upfront, but only a range.

The IPO price is a discovery process done through the book-building exercise.[32] Indeed, once the book of demands closes, bookrunners review it and suggest a price which should ensure the maximization of the IPO proceeds while being consistent with a favorable aftermarket performance, however the firm is in charge of the last decision on the IPO price. Talking about allocation, bookrunners act both in the company's and investors' best interests. The offers received from investors are weighted considering the characteristics of the offer (price and volume) as well as the reputation of the investor, but the final decision rests with the company.

1.5.2.3 Aftermarket

Another important aspect is the aftermarket, which is the final step of the IPO process. First, the company's shares are admitted to listing and the shares started to be traded in the stock exchange (admission phase).

In order to avoid an excessive drop in the share price in the 30 days following the listing, there are often stabilization mechanisms that usually represent 10-15% of the base deal size. Stabilization is an important element of an IPO, providing comfort to investors that the immediate aftermarket volatility can be mitigated when necessary. There are two different stabilization mechanisms: greenshoe and brownshoe, but they bring the same result. During the IPO the selling shareholders (or the company) provides banks with the base deal shares for cash plus a loan of the overallotment shares. The underwriting banks sell the base deal and the overallotment shares to investors, resulting in a net short position. If the shares are trading positively, banks close their net short position by exercising the greenshoe (call option), providing additional funds to the selling entity. On the contrary, if the share price is performing negatively, the underwriters will buy the shares in the secondary market to close its net short position, pushing the stock price up.

Brownshoe is an alternative method, which is uncommon in Europe. In this case, no shares are over allotted, and the stabilization agent retains proceeds from the base deal and any repurchased shares are returned using a put option. If the share price performs positively, the stabilization agent will let the put option (brownshoe) expire. On the contrary, if the share price drops, the stabilization agent will buy back shares in the secondary market, pushing its price up and it will sell it to the selling entity (the firm or its shareholders) through the put option.

[32] However, there are alternative methods that are not very common. See §1.5.3 for more details.

After the listing, it is also important for the company to maintain enough interest in it, manage investor relations, and fulfill the obligations required by laws and regulations.

1.5.3 IPO Pricing methods

There are three different IPO pricing methods: book building, auctions, and fixed-price offerings. The following paragraphs will provide further details of the book building method and will cover its two alternatives.

1.5.3.1 IPO Pricing methods: Book Building (in detail)

The book-building method is the most used in IPOs. This process is characterized by the fact that the issuer assisted with its advisors provide a price range, and the final price is going to be identified according to the interest shown by investors. When this method is applied, interactions with investors are crucial as well as communication skills. We can define this method as a sort of price discovery process because the price is not decided *ex-ante*, but it is the result of interactions with investors. We can divide this process into four steps. The first step is the Investment Banking Division (IBD) valuation and Equity Capital Markets (ECM) judgments. This valuation is done by the investment bank leading the IPO, using intrinsic[33] as well as relative[34] valuation. This is only a primary valuation, but it is important to convince the seller/issuer to proceed with the IPO.

The second step is the research analysis, where the research department of the investment bank will provide its own assessment. The research team receives the analyst presentation (see §1.5.1.3) and discusses with the management, following that it publishes its research with pros and cons as well as its company valuation range, which is derived mainly through comps[35] supported by other valuation techniques. The valuation range provided by the research department will be discussed with investors during the public phase (see §1.5.2). The third step is investor education which is characterized by one-on-one meetings, group meetings, and conference calls through which there are dialogues between the buy and the

[33] Intrinsic value is the value which derives from the specific characteristics of the asset, without deriving it from other assets.

[34] Relative value is the value of an asset which is derived from the value of assets similar to the one under consideration.

[35] Comparable companies' analysis (Comps) is one of the primary methodologies used for valuing a given company. The method is built upon the premise that similar companies provide a highly relevant reference point for valuing a given target since they share key business and financial characteristics, performance drivers and risks (Source: Rosenbaum, Joshua., and Joshua. Pearl. Investment Investment Banking Valuation, Leveraged, and Mergers & Acquisitions. 2nd ed. Hoboken: Wiley, 2013. Print.)

sell/issue side. Feedbacks obtained are used to narrow the share price range. This phase usually requires two weeks.

The last step is the roadshow and book building, where investors make their offers, and after that the book is completed. This step usually lasts 1-2 weeks and at the end, the IPO price is identified.

The book-building method is characterized by the fact that as long as the company proceeds with the IPO, the uncertainty regarding the valuation decreases. The preliminary valuation has usually a range of 20-30%, but at the end of the IPO process, there will be just one price: the IPO price.

Investment banks in charge of the IPO try to guide investors to use those multiples that bring to a higher company's valuation, but at the end of the day, there is a sort of negotiation between investors and the global coordinator(s).

It is worthy to specify that the price range communicated to the market should not be too narrow, otherwise if some events occurred the pricing agents do not have enough room for maneuver, but at the same time it should not be too wide, otherwise, the market perceived that the pricing agents are not sure about the correct firm's value. Moreover, it is essential to clarify that the price range determined in the book-building exercise is not a fixed stone, there is always the possibility to revise it according to demand received from investors. However, in Italy the cap of the price range cannot be increased because it is a way through which regulators protect retail investors, that not participating in the book building process, are theoretically committing themselves to buy at the highest price of the range.

1.5.3.2 IPO Pricing methods: Auctions

This pricing mechanism is not very popular. There are two different kinds of auctions: single price or discriminatory auction.

The single-price (or uniform price) auction is a mechanism where each investor, following the guidance provided by investment banks, quotes a price and the corresponding volume. The price established will be the price through which the company is able to cover all the shares that wants to issue, and it is applied to all the winning bidders. This mechanism does not imply the creation of a price range and is not allowed in some jurisdictions such as Italy.

An alternative to the single-price auction is the discriminatory (or Dutch) auction where the winning bidders pay the price they bid. An advantage of this process is that the price is set in a transparent way, however, one of the main drawbacks is the "winner course". Indeed, winning

bidders can believe that they overbid and try to sell immediately the shares they bought, causing a price drop in the aftermarket.[36]

In an auction, neither the issuer nor the underwriters can choose either the stock's price or its investors which results from the mechanism itself.

1.5.3.3 IPO Pricing methods: Fixed Price Offering

Through this method, the firm pre-determines the price and the number of shares that are going to place in the market. This mechanism is well seen by regulators because it is transparent, but the lack of consideration for the demand increases the risk of underpricing, therefore companies prefer to avoid it.

1.5.4 Key objectives and summary of the process

There are several objectives that a company would like to reach after the IPO process. It would like to maximize the IPO price, maintaining at the same time a stable and rising aftermarket. Indeed, the issuer would like that in the aftermarket the price increases, because it means that the IPO has been well considered by investors, but at the same time, it prefers that there is not a large gap between the IPO price and the share price immediately after the IPO, otherwise it means there has been mispricing and the selling entity (firm and/or shareholders) would have been able to raise higher proceeds.

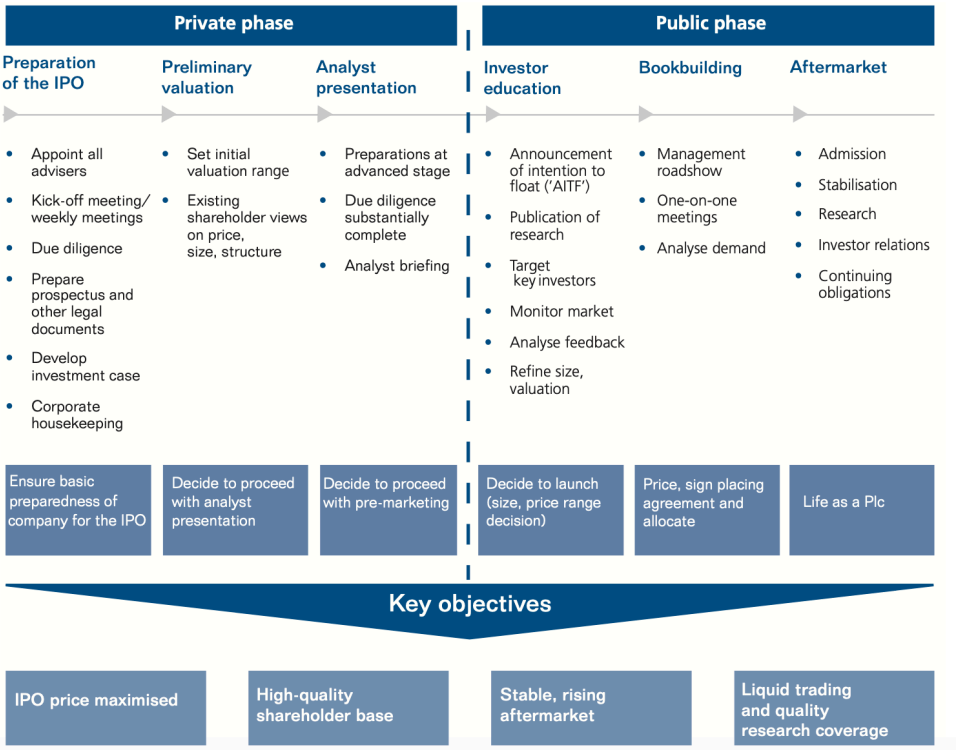
At the same time, the company would like to have liquid shares, as well as that there is enough interest in them.

In the case in which all these objectives are reached, the IPO can be considered a success without any doubts.

As we have seen the IPO process is long and requires several players. The following paragraph will focus on the key actors and their roles, whereas the following table[37] graphically summarizes the steps describe above.

[36] Source: https://www.investopedia.com/terms/d/dutchauction.asp.
[37] Source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.

Table 1.1



Source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.

1.6 Key actors[38]

During the IPO, the company needs the assistance of several players, each of them with its own duties and responsibilities.

First, the listing firm needs at least one sponsor/global coordinator that focuses mainly on the private phase, providing the so-called "heavy lifting". Sponsors ensure the overall coordination of the IPO process, which is important since there are several actors involved. They develop the valuation and the offer structure as well as guarantee of compliance with regulation, managing discussion with authorities too. Moreover, they advise the company's board and provide support after the listing.

The corporation appoints at least one bookrunner, which focuses on the public phase. It prepares the company for the roadshow and builds the book pre-float. As seen above, it plays a crucial role in the pricing and allocation, providing suggestions in terms of price and allocations, but the last decision rests with the company.

IPOs are deeply regulated, and this is the reason why several lawyers are involved in the

[38] Main source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.

process. Their priority is on legal due diligence, the draft, and the verification of the prospectus. They provide legal opinions. In addition, it is worthy to note that there are several lawyers because they assist different actors. There are the sell-side lawyers which advise the issuer (in case of primary IPO) or the main shareholder(s) (in case of secondary IPO). At the same time, there are also the lawyers of shareholders and the lawyers of the investment banks. The latter is vital because investment banks could be liable if they make mistakes during the IPO. Financial due diligence and tax restructuring are responsibilities of reporting accountants. It is important to be as detailed as possible regarding past accounting data because this increase company's attractiveness, but less precise when talking about projections (in general it is common to talk about target and time) to avoid being liable if expectations do not realize.

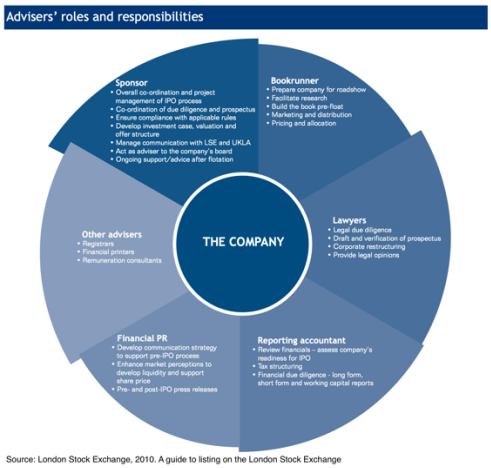
As said before, communication skills are crucial for the success of the IPO. For this reason, the issuer can appoint a financial PR that develops the communication strategy and focus on the pre/post IPO press release with the aim to enhance the company's reputation and visibility. The company could appoint registrars whose role "[…] is to update and maintain the official register of members (or shareholders) of the company whilst reconciling the total number of shares authorised and issued by the company on a daily basis."[39]

Financial printers are in charge of printing the IPO documents, nowadays their activity is not relevant anymore as documents are digital.

In case there are stock option plans or other equity incentives for the management, the role of remuneration consultants should not be underestimated.

The following picture[40] summarizes graphically the roles of the players involved in the IPO.

Picture 1.1



Source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange

[39] Source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange (p. 83).
[40] Source: London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.

1.6.1 Key actors: Role of Investment Banks

The process through which shares are created and sold during an IPO is particular. Differently, from what one could expect shares are not sold directly from the issuer/seller to investors, but there are one or more investment banks, called underwriters, that act as intermediaries. There could be two different types of underwriting: firm commitment underwriting and best efforts underwriting.

In case of firm commitment underwriting, the underwriting syndicate[41] buys from the issuer the entire size of the IPO and re-sells it to investors. To have profit, underwriters should be able to sell the shares at a price that is higher than the one at which it bought them. Since the syndicate has purchased the shares from the issuer, the company has hedged the risk of the result of the IPO, which is borne only by the underwriters.

On the contrary, in the best effort underwriting, underwriters must make their "best-effort" to sell the issuance at the agreed price, but the risk of a failure will be borne exclusively by the issuer. The best effort underwriting can contain agreements such as all-or-none and part-or-none. In the former case, the deal is closed if and only if the entire offering is sold. On the contrary, a part-or-none offering envisages that only a set number of securities are sold to close the deal. Therefore, it could happen that the offering is blocked, and the issuer is not able to raise financial resources, but it still sustained the cost of the IPO.

To summarize, underwriters provide four essential services during the IPO: they formulate the method used to issue the securities, they price and sell them, and provide stabilization[42] in the aftermarket.

1.7 Which are the buyers?

It is important to briefly specify which are the investors that can participate in an IPO. For clarification reasoning, we can distinguish between long-only investors, hedge funds, and Sovereign Wealth Funds (SWF).

Long-only investors have a longer-term approach (from 6 months to several years). They are usually insurance companies, pension, and mutual funds and they avoid using leverage. Hedge funds are alternative investments that pool financial resources and invest following different strategies. It is worthy to specify that they are generally accessible only to accredited

[41] The underwriting syndicate is a temporary pool of investment banks and broker-dealers (headed by a lead underwriter) that together sell new offerings of equity to investors.
(Source: https://www.investopedia.com/terms/u/underwriter-syndicate.asp).

[42] Done by the lead underwriter.

investors as the regulation applied to hedge funds is less strict than the other funds' one.[43] Hedge funds are more opportunistic than long-term investors, and they usually participate to the IPO looking for a short-term profit.

Sovereign wealth funds are state-owned investment funds, and they invest with a long-term perspective. They normally focus on IPO of large sizes, as they have strict requirements regarding the expected aftermarket liquidity of the shares.

It is important to highlight the fact that retail investors[44] cannot buy the shares directly from the underwriters, but they can trade them only in the secondary market when the IPO process is completed.

1.8 Cost of going public?[45,46]

As said at the beginning of this chapter, IPO is very expensive and time-consuming. The cost of going public depends on several factors such as the company's size, its market, and the amount it wants to raise.

The issuer is going to sustain direct as well as indirect costs. Generally, the largest direct costs are the underwriting fees[47] that range on average between 3.5% to 7% of the total IPO proceeds. However, legal, accounting, and tax costs should not be forgotten, and depending on the challenges the company may face during the IPO can be material.

A company that wants to list in the US market need to bear some costs connected to the SEC[48] registration, FINRA[49], and Exchange listing.

The SEC registration costs are $129.80 per $1 million of the aggregate offering amount,[50] while, "FINRA costs are calculated at a rate of $500 + 0.015% of the proposed maximum aggregate offering amount, up to $225,500."[51]

In order to be listed in a stock exchange, firms pay an initial listing fee as well as ongoing fees.[52,53]

---

[43] Source: https://www.investopedia.com/terms/h/hedgefund.asp
[44] They trade securities for their personal account. In general, they are considered less sophisticated investors.
[45] Main Source for explicit costs: PWC (https://www.pwc.com/us/en/services/deals/library/cost-of-an-ipo.html).
[46] This paragraph takes into consideration the cost of a company that wants to be listed in the USA, however, it represents a good proxy for the listing in almost every developed country.
[47] They depend on several factors and above all on the type of the underwriting (see §1.6.1).
[48] Securities and Exchange Commission.
[49] Financial Industry Regulatory Authority.
[50] Source: SEC. The rate for 10/01/2019 to 09/30/2020.
[51] Source: PWC (https://www.pwc.com/us/en/services/deals/library/cost-of-an-ipo.html).
[52] More information on the fees charged by the Nasdaq: https://listingcenter.nasdaq.com/Assets/Initialguide.pdf.
[53] More information on the fees charged by the NYSE: https://nyseguide.srorules.com/listed-company-manual

Besides the explicit costs, there are also implicit ones. From this point of view, it is worthy to highlight the IPO underpricing, which is a very debated topic in the doctrine. It is practice pricing the IPO lower than its real value.[54]

In the determination of the share price there are two opposing forces. From one side there are the company and incumbent shareholders that want it to be as high as possible to raise more financial resources; on the other side, underwriters want to keep it low, especially if it is a firm commitment to underwriting, in order to sell all the shares and gain from the spread and fees[55].

There are several reasons why there is the IPO discount phenomenon. First, investors perceive higher risk in an IPO due to the lack of the history of the stock price, therefore IPO discount is a way through which investors are incentivized to participate in the offering. Furthermore, IPO discounts increase the likelihood of a stable and rising aftermarket, which is one of the key objectives for the IPO.

The IPO discount ranges on average between 10-20%[56] but it depends on the broad market condition. Indeed, if the stock market is performing well, there is no need of discount, on the contrary if the company is listing in a turbulent period, higher discounts are needed to incentivize investors to participate in the offering.

Market condition is not the only determinant for the IPO discount, crucial is the uniqueness of the company. If the issuer is leader in a growing market and its reputation is high, there is no need for a large discount, as investors are already interested in participating in the IPO. Finally, the way in which the marketing campaign, the offering structure, and the price range are set is crucial for the IPO discount.

1.9 Alternatives to IPO[57]

In the following paragraphs the focus will be on alternatives to IPO, but before looking at them is important to understand the main problems affecting IPOs.

The different alternatives that will be discussed are Direct Public Offering (DPO) and crowdfunding. Moreover, each solution provided will be compared in terms of adverse selection, fees, moral hazard, and transparency.

Let's suppose we are in a perfect world where there are no asymmetries of information between

[54] Source: https://www.investopedia.com/terms/u/underpricing.asp.
[55] Generally, higher volumes mean higher trading fees for the underwriters (source: https://www.investopedia.com/terms/u/underpricing.asp).
[56] Source: http://www.streetofwalls.com/finance-training-courses/investment-banking-technical-training/initial-public-offerings/.
[57] This paragraph follows the presentation by Daniel Kin, Professor at BI Norwegian Business School (*Fintech* course).

investors and firms. In this world, investors know everything that firms know and vice-versa, therefore there will be efficient allocations of resources, and investors will be remunerated fairly considered the risk they take.

However, we live in a world where there are asymmetries of information and investors know much less about the company than the management and the firm itself. Since investors are not able to distinguish between good and bad firms, they are going to assume that every firm is not a good one, charging high costs[58]. In this situation, good firms that are not willing to pay the higher cost will exit the market and only bad companies will remain; this situation is described as adverse selection.

Financial intermediaries could represent a solution by decreasing such inefficiency.

Let's suppose they are able to reduce asymmetries of information and they can differentiate between good and bad firms, charging different costs. The solution to be effective needs financial intermediaries to be skillful (can distinguish between good and bad firms) and honest (act on behalf and in the interest of investors).

However, financial intermediaries are private companies, and their last aim is to maximize their profits. The main source of their revenues are fees; therefore, they try to maximize fees as much as possible. Thus, it is important that they are structured in such a way that encourage financial intermediaries to act honestly. Unlikely, due to lack of regulation and severe sanctions, this does not happen, and often fees encourage financial institutions to misbehave[59], which creates a moral hazard problem.

Summarizing we can say that information asymmetries bring to adverse selection, whereas lack of transparency and misbehavior brings to moral hazard.

IPO can be defined as inefficient because it is expensive and time-consuming, and it allows to address a limited pool of wealthy individuals and institutions.

In IPO adverse selection is high, there is no difference between good and bad companies. The cost charged by investment banks is roughly the same regardless of the company. As seen before, IPO is very expensive and advisors charge very high fees. The level of moral hazard is generally high, but it depends on how much investment banks are involved in the issuance of shares. Indeed, they know much more than investors do and they

[58] These could be in the form of higher return required.

[59] There are several institutions and economists that believes that the financial crisis of 2007-2009 has been caused by a moral hazard problem. For example, the economist Paul Krugman in an article for the New York Times dated 25 April 2010 stated "[…] the rating agencies skewed their assessments to please their clients. These skewed assessments, in turn, helped the financial system take on far more risk than it could safely handle." (Source: https://www.nytimes.com/2010/04/26/opinion/26krugman.html).

are interested in showing the company as good as possible in order to make enough interest in it. Generally, investment banks acquire the shares and re-sell them in the market, which means that the better they are in pitching the company the higher will be their return.
Lastly, transparency is high due to all rules and regulation that applies to IPOs, especially in developed markets.

1.9.1 Alternatives to IPO: Direct Public Offering (DPO)

A Direct Public Offering (DPO) enables a company to sell its shares directly to investors, without using underwriters as intermediaries.[60]
This solution can be adopted by companies that are well recognized and do not need to raise large financial resources.
DPO can be a cost-efficient alternative to IPO and typically works for companies that are already well recognized[61] and capitalized.
It is worthy to highlight that in the case of a DPO, a trading exchange platform for its securities will not be available (differently from the IPO), however its shares could be traded in the over-the-counter market (OTC).[62]
Different from the IPO, adverse selection for DPO is low because usually only well-known companies do it.
Fees on DPO are low, the mechanism streamlines the workflows required by IPOs and do not need intermediaries.
Moral hazard, as well as transparency, is low. Since there are no intermediaries, there is no room for moral hazard, but at the same time, transparency is low because there are fewer documents than in IPO.

1.9.2 Alternatives to IPO: Crowdfunding

As said before IPO is inefficient, and crowdfunding tries to solve its main problems. Crowdfunding is a fintech[63] solution that consists of a single platform to build, showcase, and share the project/firm with the public. This approach considerably streamlines the traditional model, and it is a much easier way to pitch the business to many potential investors.

[60] Source: https://www.inc.com/encyclopedia/direct-public-offerings.html.
[61] For example, on 3 April 2018, the music streamer Spotify launched a DPO. However, its DPO was unique among other DPO because Spotify is also listed on the NYSE (source: https://www.investopedia.com/terms/d/directpublicoffering.asp).
[62] Source: https://www.investopedia.com/terms/d/directpublicoffering.asp.
[63] Fintech literally means financial technology (source: Chishti, Susanne, and Janos Barberis. The Fintech Book. Chichester, West Sussex, United Kingdom: Wiley, 2016.Print.).

This process allows reaching more people and receiving feedback from them. Moreover, there is no need to create an *ad hoc* presentation, but it is enough an online presentation that can be easily updated.[64]

However, crowdfunding is not a good solution when large financial resources needed to be raised.[65]

There are three different types of crowdfunding: rewards-based, donation-based, and equity-based crowdfunding.

In reward-based crowdfunding[66], investors are not looking for financial gain and they receive a product or a service in returns for their investments. It is usually used by companies launching their first 100-500 products.

In donation-based crowdfunding[67], investors provide a contribution in return for no financial gain. It is generally used for a "to do good" cause.

Equity-based crowdfunding[68] is the one that is closer to the idea of IPO. Investors provide a financial contribution in order to become a part-owner of the firm/project, and they will receive dividends. Generally, it is used by young companies (1-2 years old) with negative cash. This kind of equity investment is less liquid and more volatile than traditional equity investments since is used mainly by start-ups.

A particular example of crowdfunding is P2P fundraising, which could be defined as "crowdfunding on steroids". It consists of recruiting participants that raise money with their own crowdfunding-style page.

Another peculiar type of crowdfunding is Initial Coin Offering (ICO)[69]. ICO is a form of crowdfunding that uses cryptocurrencies, and the process brings to the creation of a new cryptocurrency, known as token.

A token is a cryptocurrency that represents proof of the contribution to the project. It does not have inherent value, but it represents some rights to investors such as the right to use a service, have the access to a platform or receive dividends, depending on how the ICO has been structured. Tokens can also be bought and sold, similarly to securities. ICO is less expensive than IPO[70], and differently from the initial public offering is open to all.

---

[64] Source: https://www.fundable.com/learn/resources/guides/crowdfunding/what-is-crowdfunding.
[65] Source: https://www.fundable.com/learn/resources/guides/crowdfunding/what-is-crowdfunding.
[66] Examples of platforms: Kickstarter, Indigogo.
[67] Example of platform: GoFundMe.
[68] Example of platform: CircleUp.
[69] The majority of ICOs are done through Ethereum.
[70] The fees charged in the ICO are on average 5% of total proceeds, much less than the one charged by investment banks in IPO (source: https://www.investopedia.com/news/how-much-does-it-cost-list-ico-token/).

In crowdfunding adverse selection is high, because generally, only companies that are not able to raise financial resources in different ways use this method.

Fees are low, crowdfunding tries to be a solution to the traditional IPO process, therefore it tries to be faster and cheaper.

Moral hazard is lower than in IPO because the platform is not so incentivized in having misbehavior. However, it could be high because platforms gain if the amount of investments increases, therefore they are interested in having a lot of investment and activities in their systems.

Finally, transparency is low because investors do not know a lot about the company where they are investing. Moreover, different from IPO, regulation, and documents are less.

The following table summarized the level of adverse selection, fees, moral hazard, and transparency for IPO, DPO, and crowdfunding.

Table 1.2

	IPO	DPO	Crowdfunding
Adverse selection	H	L	H
Fees	H	L	L
Moral hazard	H	L	L
Transparency	H	L	L

Source: Own work.

Chapter 2 – The online food delivery industry

2.1 Introduction

Globalization is reducing distances between people and countries. Emblematic from this point of view is the definition provided by Giuseppe Di Taranto, Professor at LUISS Guido Carli University, who specifies that "the word globalization […] indicates the interrelation processes between individuals, society, institutions, states, and markets. In its actualization and more recent interpretation, it refers to the growth of networks of planetary interdependence, resulting from new communication technologies and expansion of an international production structure based on competitiveness and the predominance of transnational companies".[71]

The level of interconnections that characterize our current economic and social environment has no precedent and as suggested by Di Taranto, information and communication technologies (ITC) played a central role. Even though the current level of interconnections could have not been reached without appropriate ICT, and the internet above everything, it is necessary to specify that globalization is the result of a phenomenon that started centuries ago.

The process of economic and cultural integration has always fascinated human beings. The first declination of globalization can be seen in the Roman Empire.[72] Its geographic expansion was vast enough to include several populations with different cultures and traditions; at the same time, the ancient Roman culture itself was shaped by other traditions such as the Greek one. The main limitation was that a large part of the world was not explored yet. However, a further boost to globalization was given by the 16th century[73] when geographic expansions by Spanish and Portuguese started. New geographic areas were discovered and colonized, and new commercial routes connecting Europe with the rest of the world were created.

Geographic expansions and global trades could be defined as the forerunner of the current globalization, which has been made possible thanks to modern ITC.

The creation of the internet, the possibility to have billions of information and communicate in real-time in every part of the world has been changing businesses and our lifestyle.

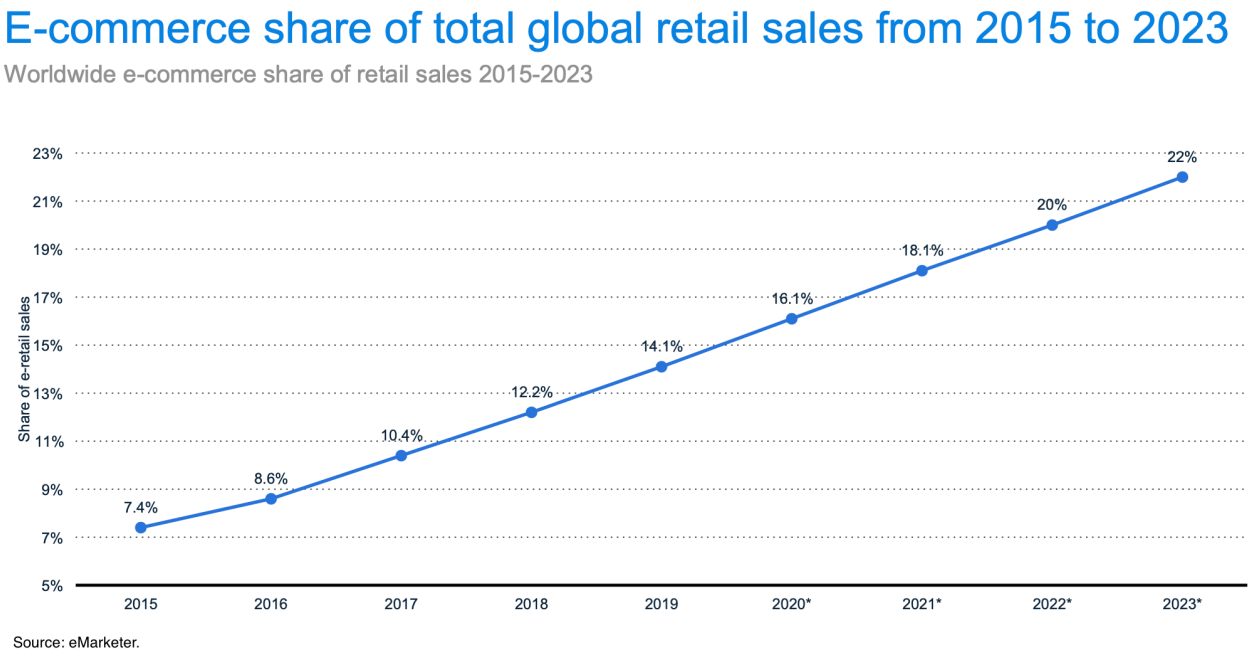
[71] Di Taranto, Giuseppe. La globalizzazione diacronica. Torino: G. Giappichelli, 2013. Print. []
[72] Palombo, Danilo. Il percorso storico della globalizzazione. 2005-2006.
[73] Palombo, Danilo. Il percorso storico della globalizzazione. 2005-2006.

In order to understand the effect that ICT has on our society, it could be interesting to briefly talk about a new phenomenon arising, which is the reduction of cash in our society. There are several economists who defined our society as a "cashless society" and the COVID-19 pandemic is further increasing this process. Nowadays, there are hundreds of fintech solutions that allow to transfer financial resources worldwide safely and quickly, allowing people to make payments with just a click directly from their coach in their living room. People are now able to purchase everything they want directly from their home in just a few seconds, and at the same time delivery providers are often able to ship products within 24 hours.

The relevance of e-commerce in the world economy is increasing exponentially, and the spread of COVID-19 is consolidating this phenomenon even more.

The following chart[74] provides the trend of the e-commerce share of total global retail sales from 2015 to 2023.

Chart 2.1



A similar pattern can be seen in the online food delivery industry, which is somehow connected to e-commerce.

To clarify the content of this chapter, at the beginning, the focus will be on the history and trend of the online food delivery industry. After that, a particular attention will be given to the most important markets: China, the US, and the UK.

[74] Source: E-commerce worldwide report by Statista (source of data: eMarketer).

Different business models will be discussed, and a broad strategic and economic overview will be given through Porter's value chain and 5 forces models as well as Pestel analysis.
The impact of the industry will be studied from an economic, social, and environmental point of view.
The chapter will end with a fintech idea I developed with my project team during my exchange at BI Norwegian Business School.

2.2 History and trend of the online food delivery industry

Online food delivery "[…] refers to the process whereby food that was ordered online is prepared and delivered to the consumer."[75]
Within this industry, there could be two different delivery service solutions: restaurant-to-consumer-delivery and platform-to-consumer delivery.[76] In the first case, the delivery is managed directly by the restaurant, in the second one, the platform is in charge of the delivery. However, it is important to point out that phone orders are not considered within the online food delivery industry.
The drivers that are pushing up online food delivery are the ones characterizing e-commerce. The spread of the internet, as well as the increased penetration of smartphones, have been crucial for the rise and development of this industry. At the same time, an important role has been played also by the increasing security offered by digital payments.[77]
Online food delivery can be considered as an evolution of traditional food delivery, for this reason, it is worthy to briefly analyze the traditional solution before talking about the new one.
The food delivery service has been dated as old as Ancient Rome where people loved ordering from fast-food restaurants called "Thermopolium".[78]
During the 18th century with the industrialization of the US, people moved from rural to urban areas, where families were not able to have a cow producing fresh milk. Since milk is perishable and there were no fridges at that time, there was the need for fresh milk every day and as a

[75] Source: Charlene Li, Miranda Mirosa, Phil Bremer, 2020. Review of Online Food Delivery Platforms and their Impacts on Sustainability.
[76] Source: Statista digital market outlook on Online Food Delivery.
[77] The importance of security in digital payments has been analyzed by a survey by American Express, whose results suggest that 37% of people interviewed in the US abandoned an online purchase due to security concerns (source: American Express Digital Payments Survey, 2017).
[78] Source: https://folo.my/blog/what-is-a-food-delivery-service.

result, daily milk delivery become frequent in the American lifestyle.[79] It seems that the first milk delivery occurred in Vermont in 1785.[80]

Nowadays, when we think about food delivery we think about pizza, and it seems that the first users of pizza delivered were king Humbert and the Italian queen Margherita, who placed the first pizza delivery order in 1889.[81]

Looking at the Asian market, it is worthy to mention Indian *dabbawala*. *Dabbawala* literally means "one who carries a box", indeed food is stored in large circular tins.[82] It seems that this system was created 125 years ago.[83]

Turning back to Europe, it is interesting to talk about the food delivery system created by the British government during WWII. The idea was so popular that it quickly spread in the Anglo-Saxon world, especially in Australia and in the US.[84]

As said before, technology shapes our lifestyle and habits.

In the 20th century a new form of entertainment was created: the TV. With the passing of time, TVs become cheaper and in almost every house there was a TV. People started preferring staying home, watching TV, instead of going to restaurants. In order to deal with pressure on demand, restaurants started to provide carry-out and delivery options.[85]

It is now interesting to understand which was the traditional food delivery market share before online food would become mainstream. According to research[86] by McKinsey, in 2016 the total value of the food delivery market was €83 billion, 1% of the total food market, and the traditional model was the most common. By traditional model we mean the situation where the consumer makes an order directly to the restaurants that will be in charge of making the dish and delivering it, orders were made mainly by phone call. According to the McKinsey research, in 2016 the traditional delivery has a 90% market share, and most of the orders were placed by phones.

The main problem with the traditional system was that the delivery was the responsibility of restaurants, therefore only the biggest ones were able to cover the fixed cost of it, offering that

[79] Source: https://underscore.factor75.com/the-history-evolution-of-food-delivery/.
[80] Source: http://www.drinkmilkinglassbottles.com/a-quick-history-home-milk-delivery/.
[81] Source: https://www.refinery29.com/en-us/2017/04/149332/first-pizza-delivery-story.
[82] Source: https://www.independent.co.uk/life-style/food-and-drink/dabbawalas-food-delivery-system-mumbai-india-lunchbox-work-lunch-tiffin-dabbas-a7859701.html
[83] Source: https://underscore.factor75.com/the-history-evolution-of-food-delivery/.
[84] Source: https://underscore.factor75.com/the-history-evolution-of-food-delivery/.
[85] Source: https://underscore.factor75.com/the-history-evolution-of-food-delivery/.
[86] Source: McKinsey research "The changing market for food delivery" (https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery).

service to their clients. At the same time, the wave of digital technology was and still is reshaping people's habits and the market. Consumers are becoming increasingly familiar with online shopping, and the demand for online delivery is growing.

Those two drivers have led to the rise of online food delivery and two different types of online platforms were created: "aggregators" and "new delivery"[87].

Aggregators provide an online platform where customers can compare prices and menus of different restaurants, but the platform will not be in charge of the delivery which remains a responsibility of the restaurant. To be on the platform, restaurants must pay a fixed margin on each order. Delivery is done by the restaurant itself, therefore this solution is based on the traditional delivery system.

The new delivery solution is similar to the aggregator one, but the main difference is that delivery will be handled directly by the platform. In this way, their solutions expand the market, giving the possibility even to small restaurants to offer delivery services, providing a sort of democratization. The fee they charge on restaurants is similar to aggregators' ones, in addition, they charge generally a fee to consumers too.

Every solution becomes popular when there is a need for them. The spread of Covid-19 forced governments to limit social activities and increase social distance. A lot of non-essential businesses such as restaurants were forced to close temporarily. The situation boosted the demand side as well as the supply one. People were forced to stay at home, and the only way to avoid cooking was by ordering food. At the same time, restaurants were allowed to work only on delivery.

The following table[88] focuses on the effect that COVID-19 had on shifting purchases from offline to online.

[87] Terminology used by the McKinsey research quoted above.
[88] Source: E-commerce worldwide report by Statista.

Table 2.1

Have you deliberately purchased any of these products or services online instead of offline because of the COVID-19 / coronavirus pandemic? (as of May 31, 2020)

Shifting to online purchases because of the COVID-19 pandemic 2020, by category

	Germany	United Kingdom	United States
Restaurant delivery / takeaway	16%	19%	31%
Hygiene products (e.g. hand sanitizer, toilet paper)	13%	21%	27%
Clothing	25%	24%	26%
Household cleaning products	9%	17%	26%
Food and drink delivery (e.g. from supermarket)	10%	30%	24%
Health products (e.g. medicine)	15%	15%	21%
Books	14%	16%	15%
Hobby supplies	9%	14%	15%
Games	10%	13%	13%
Consumer electronics, household appliances, furniture	9%	11%	11%
Video	7%	7%	11%
Music	7%	8%	10%
Magazines & newspapers	6%	7%	6%

Source: Statista survey.

As we can capture from the survey, in Germany 16% of people interviewed used restaurant delivery due to COVID-19, 19% in the UK, and 31% in the US. A similar pattern has been registered for the food and drinks delivery.

Table 2.2[89] provides information on the turnover for online food delivery worldwide, without taking into consideration the traditional delivery system.

Table 2.2

Definition
worldwide, Online Food Delivery in EUR

Revenue in million €

	2017	2018	2019	2020	2021	2022	2023	2024	CAGR in %
Total	67,479.45	80,954.62	95,155.19	120,825.85	134,194.15	145,402.61	154,405.72	161,472.59	13.27
Platform-to-Consumer Delivery	31,262.91	39,218.31	47,635.27	62,649.46	70,502.52	76,944.60	81,968.67	85,785.01	15.51
Restaurant-to-Consumer Delivery	36,216.54	41,736.31	47,519.92	58,176.39	63,691.64	68,458.00	72,437.05	75,687.59	11.10

Source: Statista (Forecast adjusted for expected impact of COVID-19), November 2020, exchange rate: 0.88562 EUR/USD

As we can see in 2017 the total turnover of the online food delivery was €67.5 billion, reaching €121 billion in 2020 and expecting to be €161.5 billion in 2024 with a cumulative average growth rate (CAGR) of 13.27%, suggesting the opportunities within the industry.

The situation becomes even clearer if we focus directly on the rate of growth of the industry's revenues worldwide as table 2.3[90] allows us to do.

[89] Source: Statista digital market outlook on Online Food Delivery.
[90] Source: Statista digital market outlook on Online Food Delivery.

Table 2.3

Revenue Growth in percent

	2017	2018	2019	2020	2021	2022	2023	2024
Total		19.97	17.54	26.98	11.06	8.35	6.19	4.58
Platform-to-Consumer Delivery		25.45	21.46	31.52	12.53	9.14	6.53	4.66
Restaurant-to-Consumer Delivery		15.24	13.86	22.43	9.48	7.48	5.81	4.49

Source: Statista (Forecast adjusted for expected impact of COVID-19), November 2020

As we can notice the growth level were already high in 2018 and 2019, but in 2020 there has been a sensible boost, due to the spread of COVID-19. The growth level is expected to decrease in the following years reaching an estimated level of 4.58% in 2024. It is worthy to note that despite the large increase in 2020, in 2021 is still expected growth in the revenues, suggesting that the market expects people to be accustomed to online food delivery continuing to use it, regardless of governments' restrictions on restaurants.

It is now interesting to understand how the activity is divided between countries. Differently from what could be expected, the first country by revenues is not the USA, but China. There could be different reasons behind this result.

First, the US population is much smaller than the Chinese one, respectively 328.2 million against 1.4 billion people.[91] However, it is essential to point out that US nominal GDP per capita is much higher, $65,298 against $10,262.[92]

Another important explanation could be identified on the different levels of payment digitalization between the countries. Indeed, one-third of payments in China are cashless and three-fourths of Chinese phone owners use mobile payments, compared to one-fourth of American users.[93] This is the result of different choices between America and China. Indeed, while America spent time and financial resources to upgrade the traditional banking payment system (characterized by magnetic striped cards), China experienced a payment revolution riding the fintech wave. Indeed, "China's new system is built on digital wallets, QR codes […] and runs through their own big tech firms: Alipay running through Alibaba (China's version of Amazon) and WeChat Pay running through Tencent (China's version of Facebook)."[94]

The following table provides the top 5 countries by level of revenues in the online food delivery market.[95]

---

[91] Source: 2019 data from The World Bank (https://data.worldbank.org/indicator/SP.POP.TOTL).
[92] Source: 2019 data from The World Bank (https://data.worldbank.org/indicator/NY.GDP.PCAP.CD).
[93] Source: https://www.cgap.org/research/publication/china-digital-payments-revolution.
[94] Source: https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_china_digital_payments_klein.pdf.
[95] Source: Statista digital market outlook on Online Food Delivery.

Table 2.4

Global Comparison - Revenue in million €

	2017	2018	2019	2020	2021	2022	2023	2024	Rank
China				45,622.18					1
United States				23,492.74					2
India				9,029.57					3
United Kingdom				5,303.14					4
Brazil				2,922.18					5

Source: Statista (Forecast adjusted for expected impact of COVID-19), November 2020, exchange rate: 0.88562 EUR/USD

It is interesting to notice that total revenues in China are twice the American ones and the Chinese activity in terms of revenues is greater than the sum of the other 4 top countries. Finally, it is worthy to note that among the top 5 countries, only one is a European country, and none of them belong to the EU.[96]

2.3 Market share and key players

The online food delivery industry depends a lot on the country which is under examination. It is difficult and useless to study it globally since it is characterized by the fact that each continent if not each country has its own characteristics. For this reason, the following paragraphs will focus on three main geographic areas: China, the United States, and the United Kingdom. In order to provide some insights on the online food delivery industry worldwide, it is worthy to mention that total revenues in 2020 have been equal to €121 billion[97]. At a first glance, this number could be considered huge, but if compared to the total revenues of the food industry, we can understand that the online food delivery market represents only a small fraction of the food industry. Indeed, total revenues in 2020 for the food industry have been equal to €7.3 trillion[98]. Therefore, the online food delivery industry represents about 1.66% of the food market.[99]

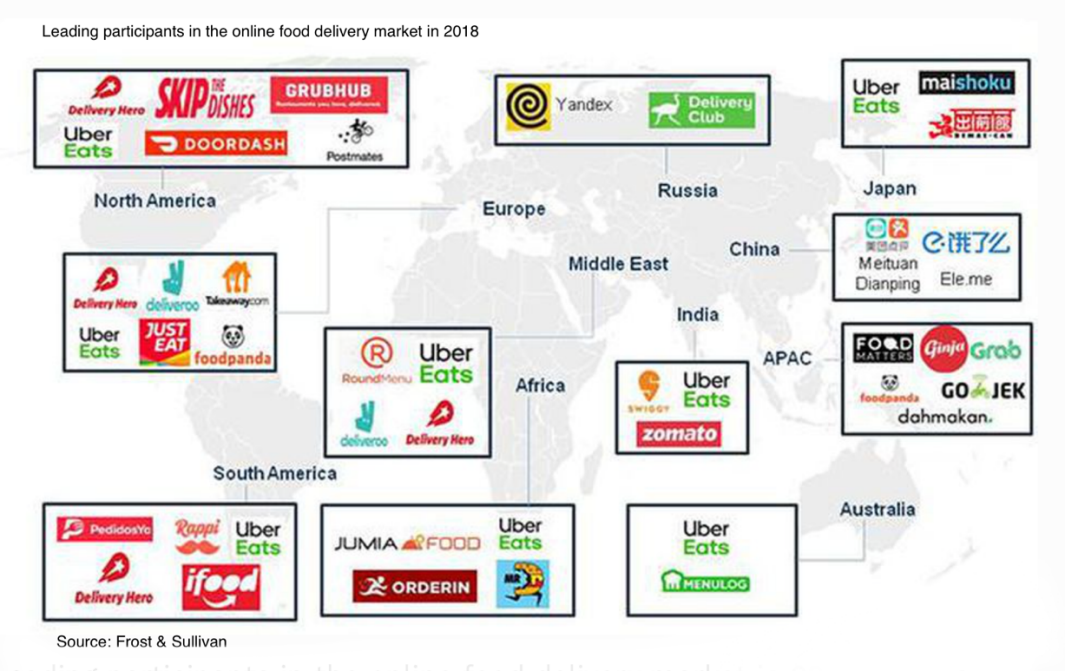
In terms of players, platforms change passing from one country to another, and this is one of the reasons why it is difficult to study the market globally[100] and it is necessary to split the market into different geographic areas.

The following picture[101] summarizes the fragmentation of the online food delivery industry. As we can notice there are several players, and a first differentiation can be done between the west

[96] Following Brexit, and starting from 1st January 2021, UK will not be in EU anymore (source: UK government, https://www.gov.uk/transition).
[97] Source: Statista digital market outlook on Online Food Delivery.
[98] Source: Statista consumer market outlook on food.
[99] Computed as total revenues online food delivery/total revenues food industry (€121 Billion/ €7.3 Trillion).
[100] Indeed, it is difficult to find research that studies the market globally, but on the contrary each report focuses on a specific geographic area.
[101] Source: Forbes (https://www.forbes.com/sites/sarwantsingh/2019/09/09/the-soon-to-be-200b-online-food-delivery-is-rapidly-changing-the-global-food-industry/?sh=23ca6febb1bc).

and the east. Indeed, it is common to see the same players for east or west countries. It is also interesting to point out that Uber Eats operates in almost every country. From this point of view, is worthy to highlight that Uber has an important advantage compared to its competitors in the online food delivery, since Rides and Eats businesses are built on the same tech stack.[102]

Picture 2.1



2.3.1 Market share and key players: China[103]

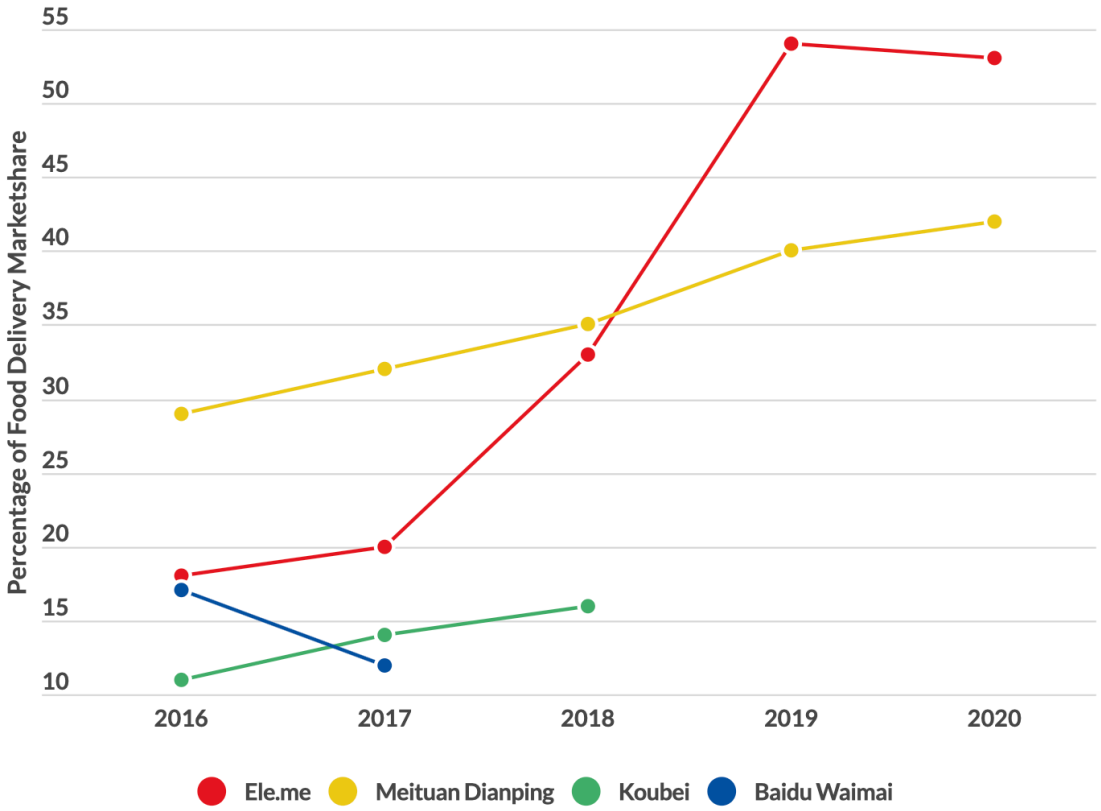
The Chinese online food delivery market is expanding at a fast rate, over the last decade, its market size has grown almost 30-fold. As a result of this phenomenon, the Chinese market is the biggest in terms of revenues. Indeed, in 2020 revenues in the food delivery industry have been equal to €45.6 billion, representing 37.19%[104] of the total market size. Despite the numbers, this market is not without risks and challenges. Indeed, even if it gives jobs to millions of people, the working hours are a lot and the commission for each order is decreasing as well. Moreover, most orders are shipped through plastic bags, hurting sensibly the environment.

[102] Source: J.P. Morgan article "What's cooking in online food delivery?" (https://www.jpmorgan.com/insights/research/online-food-delivery).
[103] Main source: Statista report on Online food delivery in China.
[104] Computed as revenues in China/total revenues (€45.6 Billion/€121 billion), using data from Statista digital market outlook on Online Food Delivery.

Talking about players, the market is dominated by two big players: Ele.me and Meituan Dianping, as suggested by chart 2.2[105].

Chart 2.2

China Food Delivery App Market Share



Sources: Daxue Consulting, Forbes, TechNode

As we can notice from the graph above, the two main players together cover almost all the market[106], especially after the merge of Koubei and Baidu Waimai with Ele.me.

We can consider the Chinese online food delivery market as a duopoly, and it is interesting to point out that behind the two main players there are two of the largest tech companies in the world: Tencent and Alibaba. Indeed, Alibaba acquired Ele.me in 2018, whereas the main shareholder of Meituan Dianping is Tencent.

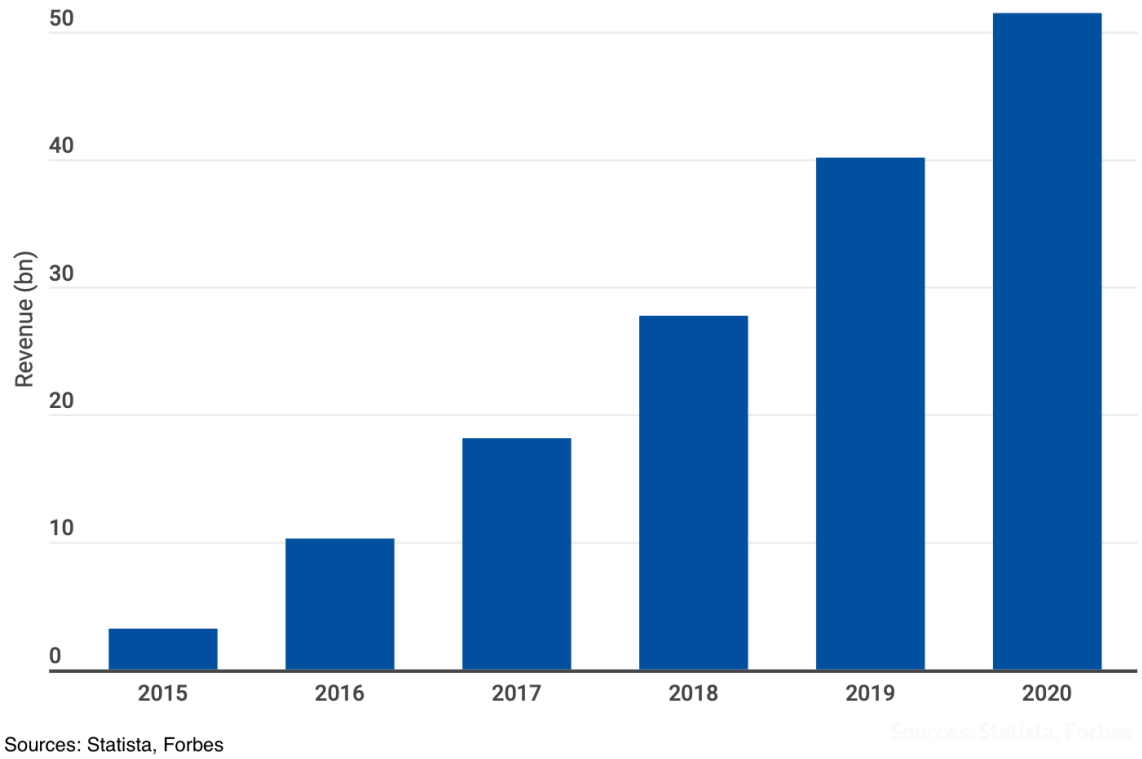
It is now worthy to understand which are the revenues that delivery platforms are able to generate. According to data provided by Statista and Forbes, in 2015 all the delivery platforms

[105] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[106] Ele.me market share was in 2020 equal to 53%, whereas Meituan Dianping was 42%.

generated $3.2 billion of revenues, reaching in 2020 $51.5 billion. The growth of this industry, as well as the numbers, reached, explain why Tencent and Alibaba decide to enter the market. Chart 2.3 (in $)[107,108] provides a graphical summary of the app delivery revenues in China from 2015 to 2020.

Chart 2.3

China Food Delivery App Revenue



Talking about revenues it is worthy to specify that the main driver for the Chinese market is the volume rather than the price. Indeed, currently, revenues per user are lower than in the US and the UK, but the gap is expected to decrease in the following years with the increase of the disposable income of the Chinese population.[109]Indeed, according to data provided by Daxue Consulting, Goldstein Research, and Financial Times, total revenues are expected to be $100 billion in 2025.[110]

[107] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[108] Differences with previous data are due to different methodologies, perimeters, and currencies adopted.
[109] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[110] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.

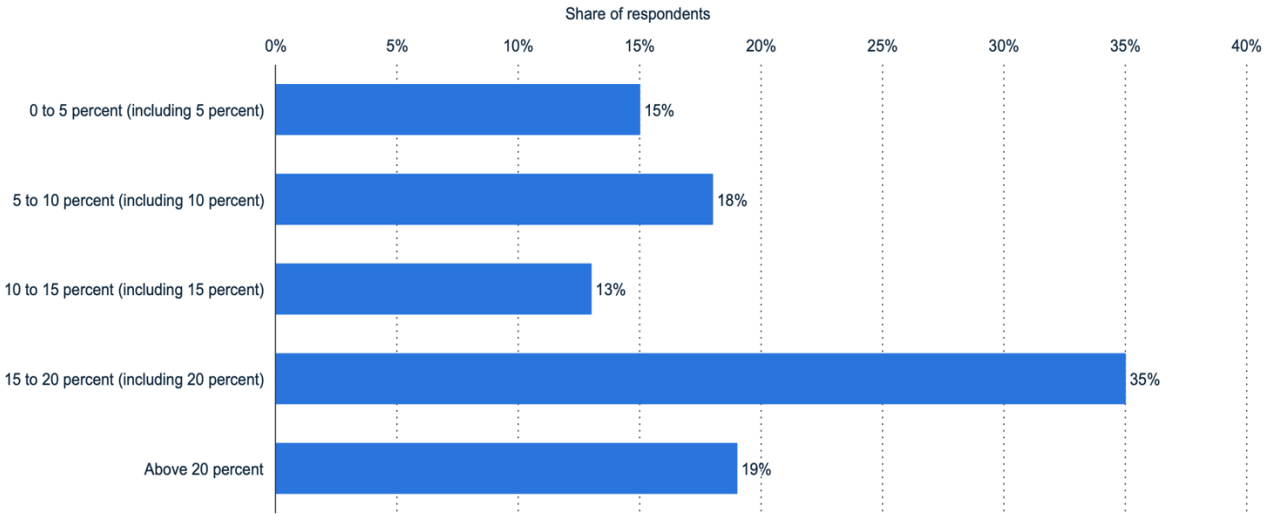
In order to understand better how revenues are generated by the online delivery platforms, it could be engaging to focus on commissions charged by those players. According to a survey by Statista between February and March, 35% of people interviewed answered that commissions charged are between 15-20%.

The following chart[111] shows the result of the Statista survey on commission charged by online delivery platforms in China.

Chart 2.4

Distribution of commission charged by third-party online food delivery platforms in China as of March 2020

Distribution of commission charged by food delivery platforms in China 2020



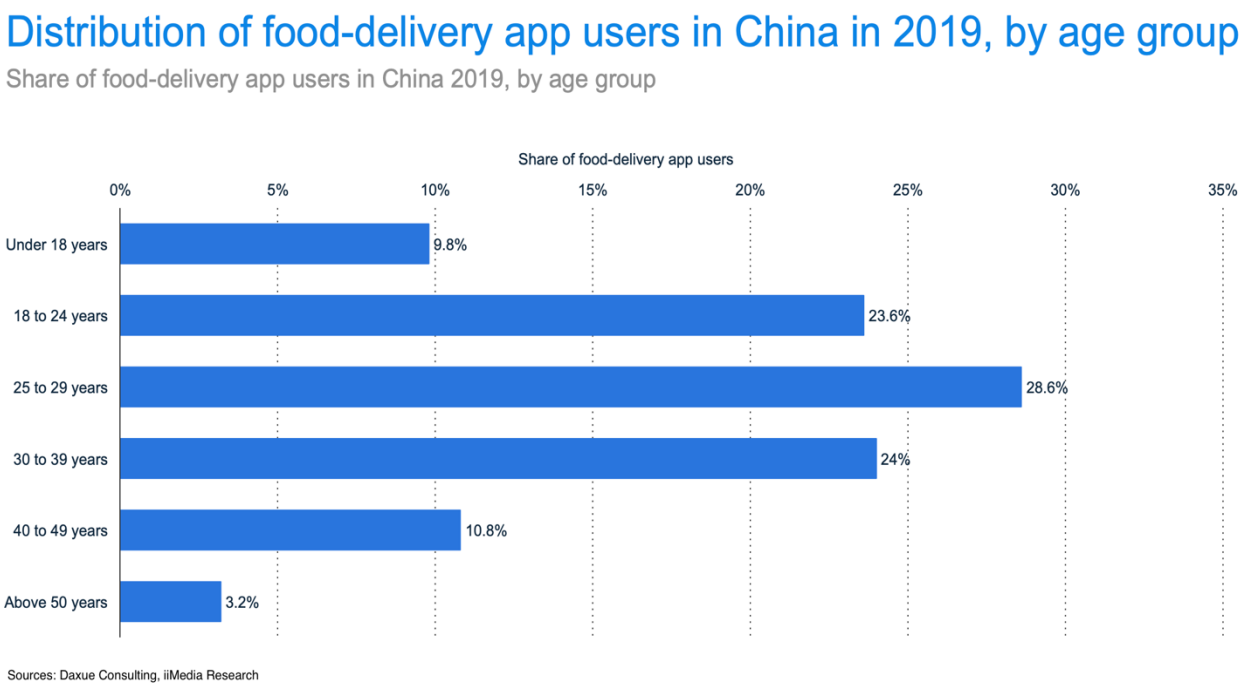
Sources: Deloitte, CCA.

Talking about the frequency of food delivery service usage in China in 2019, some interesting data are provided by Daxue Consulting and iiMedia Research. Most people interviewed (33.7%) answered that they used online delivery food between three to five times a week; 32.4% said they used it once a week and the remaining part is almost equally split between three times a month (15.1%) and more than once a day (13.1%).

Another meaningful data is provided by the two abovementioned institutes in terms of the age of users. Indeed, the range of 25 to 29 years is the one with most of the users, however, differently from one could expect older Chinese tends to use online food delivery as well. The result is that the age of users follows a gaussian distribution as suggested by chart 2.5[112].

[111] Source: Statista report on Online food delivery in China.
[112] Source: Statista report on Online food delivery in China.

Chart 2.5



The same research mentioned above focused also on the distribution of food delivery apps by income level. They divide users into three different clusters: low, middle, and high income. As one could expect, the higher is the income, the higher are the percentage of users, however, the three clusters perform quite similarly.[113]

As said at the beginning of the chapter, COVID-19 has encouraged the use of online food delivery. Even if this is true from a global perspective, data from Rakuten Insight are ambiguous. The survey done in June, interviewed 1,321 food delivery users, almost equally split in terms of gender. Most people interviewed (33%) answered that they ordered less through food delivery apps, but at the same time 31% responded exactly the opposite. However, the same survey provides interesting information in terms of change in lifestyle. Indeed 76% of people interviewed answered that they will continue to use online food delivery app even when social distancing and other restrictions are loosed.

To summarize, the Chinese market is the biggest one in terms of revenues. It is an oligopoly where there are only two players representing 95% of the total market share and is volume rather than value-driven.

[113] High income 39%, middle income 33% and low income 28% (data: Daxue Consulting and iiMedia Research).

2.3.2 Market share and key players: The US

As seen in §2.2, the US is the second biggest market in terms of revenues.

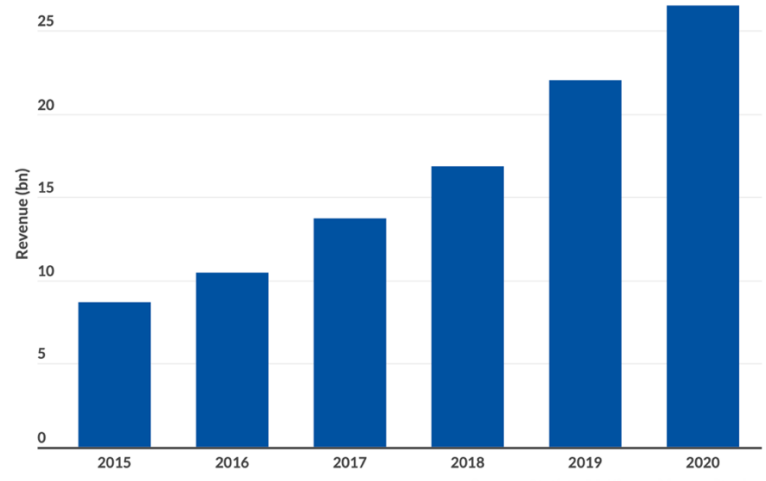
In 2020 total revenues in the US have been equal to €23.5 billion, representing 19.42%[114] of the global revenues of the industry.

In order to understand the growth of the US market, can be interesting to look at the last 5 years. The following histogram (in $)[115] provides information on total revenues in the US for food delivery platforms.

Chart 2.6

US Food Delivery App Market

US Food Delivery Revenue



Sources: Statista, McKinsey, Morgan Stanley

Similar to the Chinese market, the US one had a sensible growth from 2015 to 2020. However, it is worthy to point out that the Chinese market grew at a faster rate. Indeed, in the US total revenues were $8.72 billion, reaching $26.52 billion in 2020, whereas in the same time period the Chinese market moved from $3.2 billion to $51.5 billion.[116]

In terms of expectation, the US market is expected to grow slowly in the next years, reaching an estimated $42 billions of revenues in 2025.[117]

Another important difference between the two markets are key players. While the Chinese market can be considered a duopoly, the US is one of the most competitive one, with four big

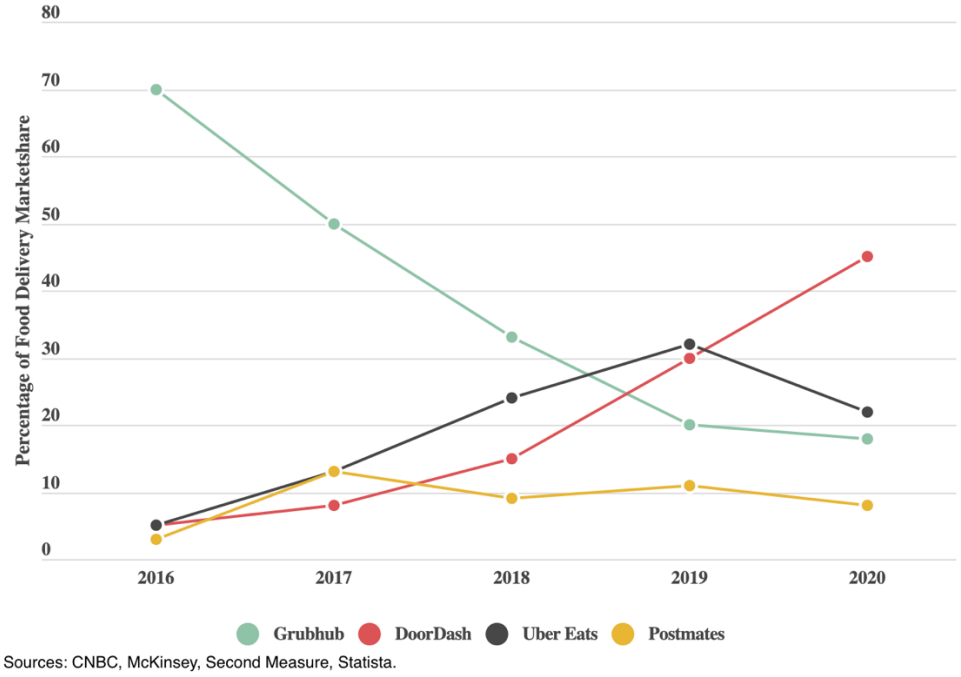
[114] Computed as revenues in US/total revenues (€23.5 Billion/€121 billion), using data from Statista digital market outlook on Online Food Delivery.
[115] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[116] Differences with previous data are due to different methodologies, perimeters, and currencies adopted.
[117] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4 (data: Research & Markets, IMARC group).

players: Postmates, UberEats, DoorDash, and Grubhub.

The following chart[118] helps understand graphically the level of competition among platforms, by comparing their market share.

Chart 2.7

US Food Delivery App Market Share



Sources: CNBC, McKinsey, Second Measure, Statista.

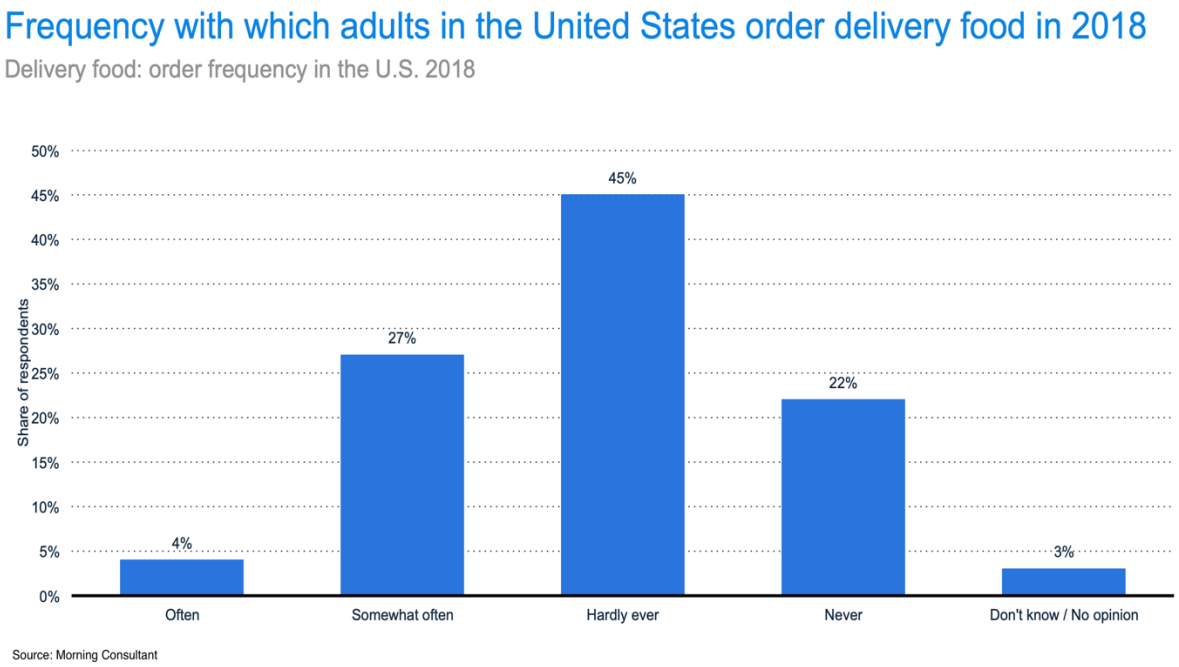
As we can notice from the picture, the drop of Grubhub market share has been sensible, passing from 70% in 2016 to 18% in 2020. Just 4 years ago the market could have been considered as a monopolistic competition, with one big player and several smaller ones, on the contrary, nowadays competition is compelling. Another interesting trend is that in the time horizon 2016-2020, only DoorDash has been able to increase its market every year, becoming the leader in 2020. Although the high competition, it is legitimate to think, that this will decrease in the next future due to M&A activities. Indeed, according to a report by J.P. Morgan, the acquisition of Postmates by UberEats is expected to generate large synergies. In the meanwhile, other competitors move in the same direction, and in June Just Eat announced it would acquire Grubhub.[119]

Talking about the frequency of orders, a survey by Morning Consultant done in 2018 for the

[118] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[119] Source: J.P. Morgan article "What's cooking in online food delivery?" (https://www.jpmorgan.com/insights/research/online-food-delivery).

US market, suggests that 45% of people interviewed, hardly ever used online food delivery. The remaining answers are distributed in such a way that responses follow a gaussian, as we can see from chart 2.8[120].

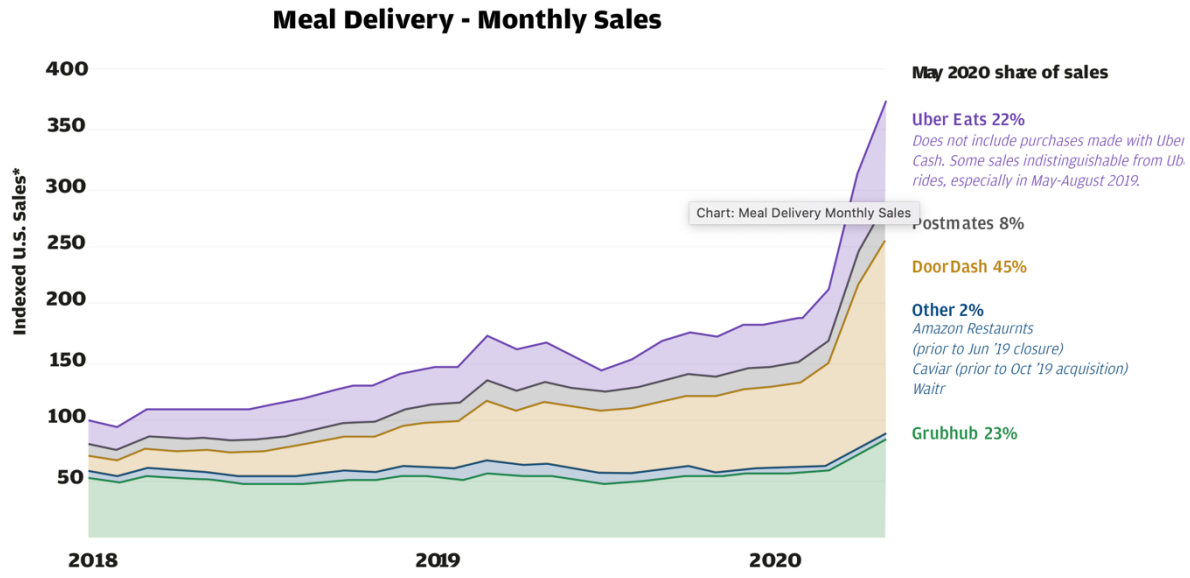
Chart 2.8



However, it is important to point out that although the research is quite recent, the market is growing at such a fast rate, that two years can make the difference. It is now essential to consider the effect of COVID-19 on the US online food delivery industry. As expected, restrictions adopted by the US government to face the pandemic have encouraged alternative solutions to traditional restaurants. As we can notice from the following chart[121] by J.P. Morgan, monthly sales immediately after the announcement of restrictions increased exponentially.

[120] Source: Statista report on Online food delivery services in US.
[121] Source: JP Morgan article "What's cooking in online food delivery?" (https://www.jpmorgan.com/insights/research/online-food-delivery).

Chart 2.9



*Indexed to meal delivery Jan. 2018 sales (=100)

Source: Second Measure's Data Points blog

However, as highlighted by the investment bank, a lot of restaurants were negatively impacted by the growth of online food delivery platforms, due to the high fees charged by them.

To summarize, the US market is a growing one, although is not able to reach the level seen in China. Nowadays, it is very competitive, but it is reasonable to believe in a consolidation process in the next future due to M&A activities.

2.3.3 Market share and key players: The UK

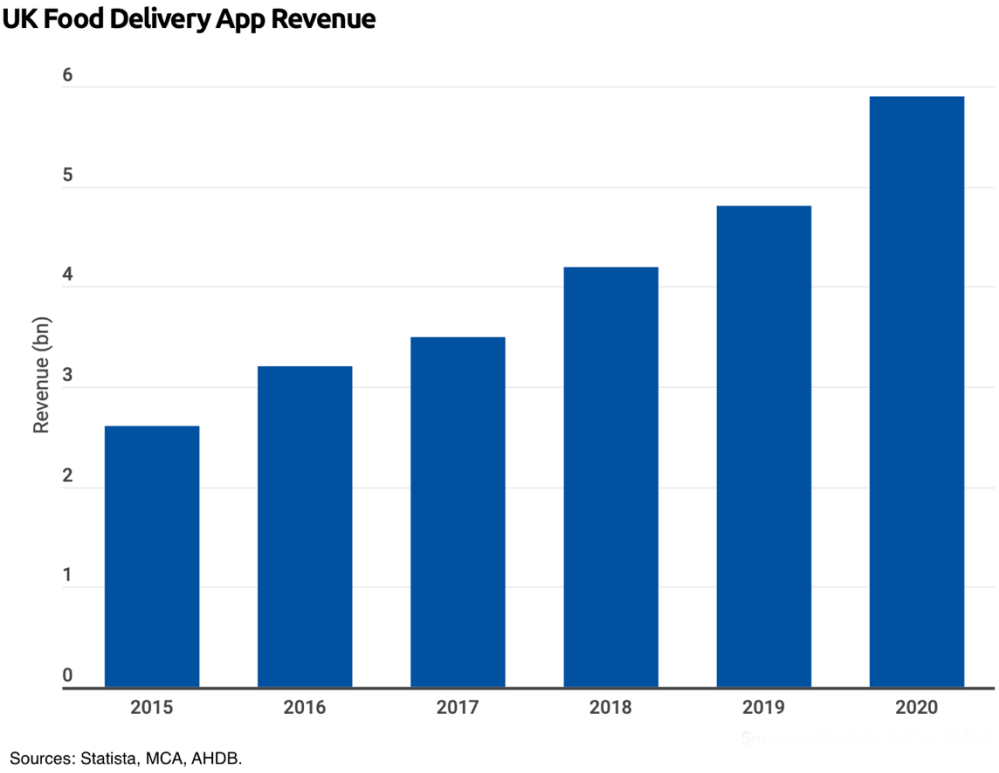
The British online food delivery market is the fourth in terms of revenues. As seen in §2.2 total revenues have been equal to €5.3 billion, representing 4.38% of the total market revenues.[122] Similar to the US and China, the UK food delivery market is growing, but at a much slower rate. Indeed, according to data by Statista, MCA, and AHDB, in 2015 total revenues were $2.6 billion reaching in 2020 $5.9 billion.[123] Even though in just 5 years total revenues have more than doubled, the growth has been lower than the one experienced in other countries such as the US and China.

The following histogram (in $)[124] shows graphically the growth in the UK in terms of revenues

[122] Computed as revenues in UK/total revenues (€5.3 Billion/€121 billion), using data from Statista digital market outlook on Online Food Delivery.
[123] Differences with previous data are due to different methodologies, perimeters, and currencies adopted.
[124] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.

for the online food delivery industry.

Chart 2.10



According to data provided by Statista and Deloitte, the market is expected to grow as well in the next 5 years, reaching $9.4 billion in 2025.

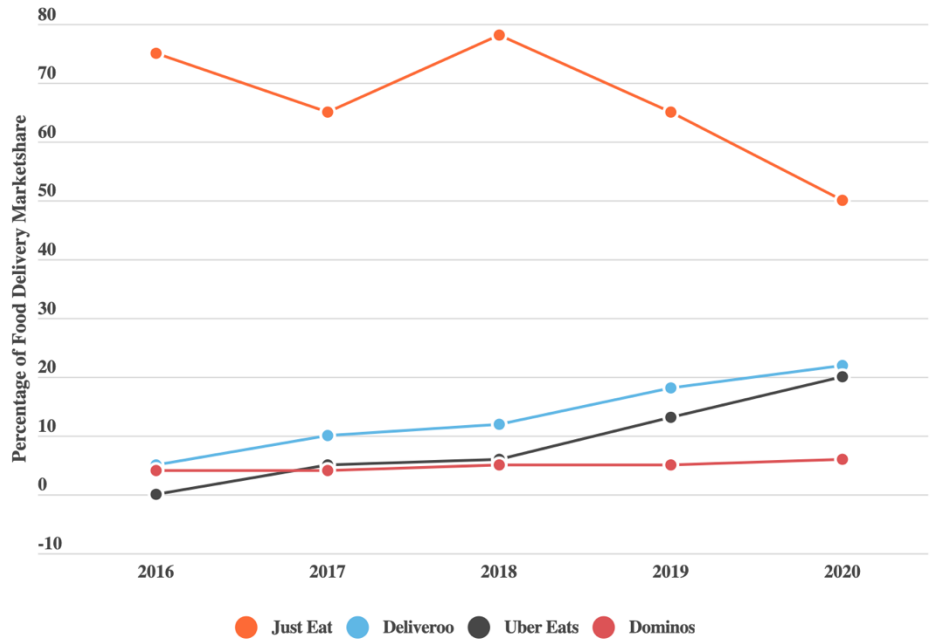
Talking about platforms' competition, the UK market is somehow in the middle between the Chinese and the US. Indeed, it is not a duopoly as the Chinese market, but at the same time competition is not as high as the US market. Indeed, in the UK there are four main competitors, with Just Eat being by far the largest player, even though in the last two years it lost market shares.

The following chart[125] shows the main competitors and their market share in the UK online food delivery industry.

[125] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.

Chart 2.11

UK Food Delivery App Market Share



Sources: AHDB, Deloitte, Just Eat.

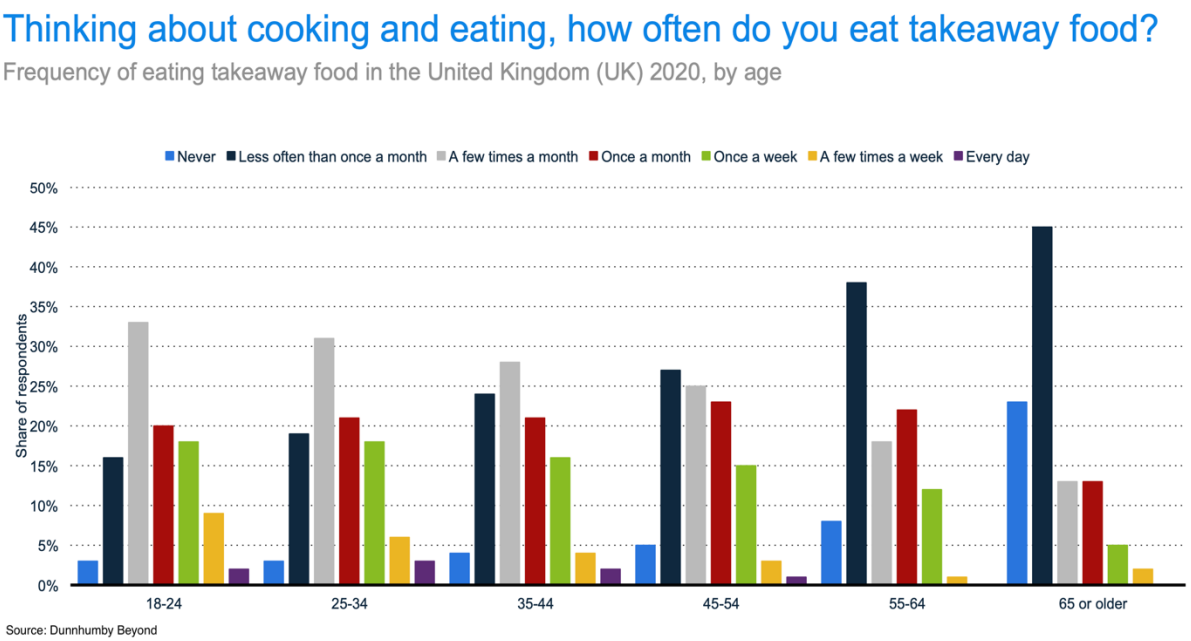
As we can notice from the chart, the market share of Just Eat has been eroded by Deliveroo and Uber Eats. In order to invert the trend, Just Eat recently introduced partnerships with fast food companies such as McDonald's.[126] Another interesting insight that can be captured by the chart is the presence of Domino's among the top four UK food delivery platform. Indeed, while the other three apps are platforms where several restaurants are listed, Domino's is a pizza chain, and only pizzas from Domino's restaurants can be ordered using its app.

Talking about the age of British consumers, it is interesting to note that according to data provided by Dunnhumby Beyond almost every cluster of age use online food delivery, however, youngers tend to use it more frequently.

The following chart[127] graphically shows the use of online food delivery in the UK by age.

[126] Source: https://www.just-eat.co.uk/takeaway/brands/mcdonalds.
[127] Source: Statista report on food delivery and takeaway market in the UK.

Chart 2.12



To summarize, the UK market is growing, but at a slower rate than other ones. It is not a very competitive market even though there are four competitors, because 50% of the market share is held by Just Eat.

2.4 Business Models[128]

In order to understand fully the online food delivery industry, it is crucial to point out which are the different business models adopted by companies. Business models can be divided into Platform-to-Consumer, Restaurant-to-Consumer, and Full-Stack.

2.4.1 Platform-to-Consumer

This model is characterized by third-party apps that show restaurants, divided into categories, which are close to the user. The delivery process will be handled by the platform, and partner restaurants do not need to offer food delivery themselves

Doordash and UberEats are examples of the Platform-to-Consumer model, and generally, they take 20-30% of the total value of the order.

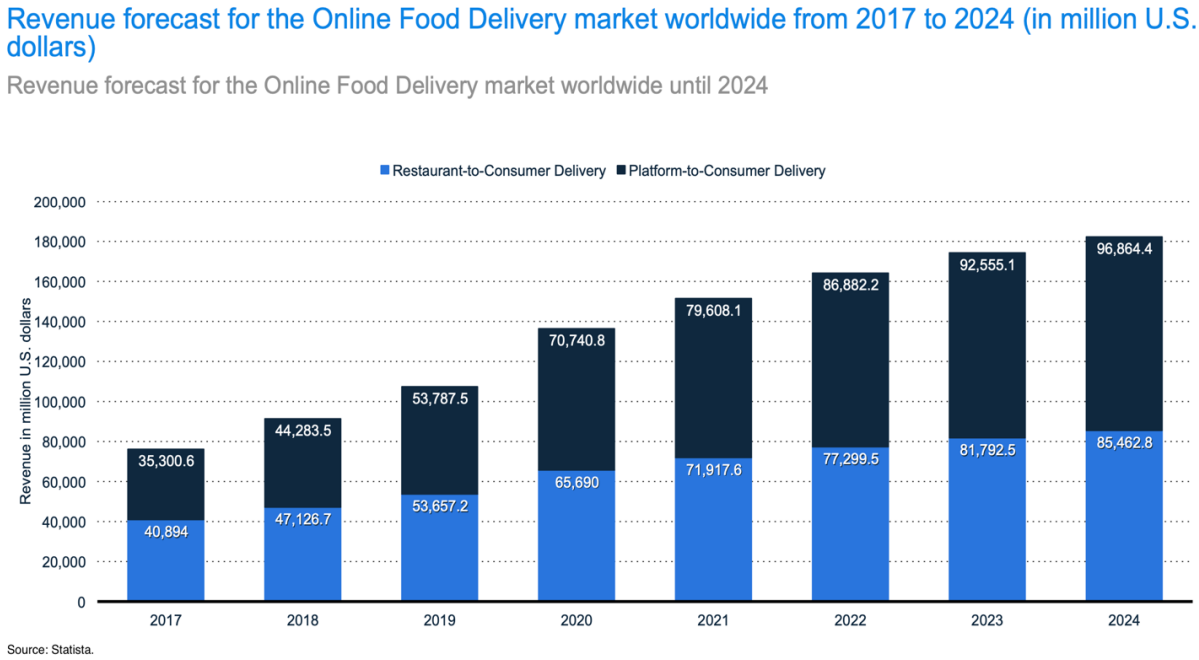
A particular example of Platform-to-Consumer are aggregators. They act as intermediaries between restaurants and consumers, and they offer customer care on behalf of restaurants.

[128] Main source: https://productmint.com/the-food-delivery-business-model-a-complete-guide/.

Examples of aggregators is Just Eat and Delivery Hero and it is interesting to mention the fact that some of these operators have tried to introduce a subscription model where customers pay a monthly fee to receive free delivery and discounts. A subscription model could be essential for players to consolidate their market shares, by locking customers to use their services instead of competitors', and at the same time encouraging people to order more, in order to "cover" the initial cost of the monthly fee.

According to data provided by Statista, the Consumer-to-Platform delivery represents the dominant model adopted in the online food delivery industry as the following chart[129] suggests.

Chart 2.13



The Platform-to-Customer approach has two main drawbacks for restaurants.

First, commissions charged to restaurants are very high and could be even 30%. Moreover, in the case restaurants rely completely on platforms, they do not have access to data on consumers, not allowing them to improve their offer.

[129] Source: Statista report on Online food delivery services in US.

2.4.2 Restaurant-to-Consumer

This model "includes the delivery of meals carried out directly by restaurants. The order may be made via platforms (e.g., Delivery Hero, Just Eat) or directly through a restaurant website (e.g., Domino's)".[130] Therefore, the main difference with the Platform-to-Consumer is who handles the delivery, in the first case the platform, in this case the restaurant itself, regardless of how orders have been placed (restaurants' web page/app or third party-platform).

To better understand the differences between the two models described, it could be worthy to make comparisons among them.

In the Restaurant-to-Consumer model, restaurants can control delivery, managing better the customer relationship. However, restaurants must cover the cooking equipment and staff as well as delivery ones.

In the Platform-to-Delivery model, the restaurant cannot control delivery, making more difficult the strengthening of the customer relationship. Moreover, restaurants do not need to pay for delivery equipment and staff, since it is the responsibility of the platform. Generally, this kind of solution is technologically more advanced.

2.4.3 Full-Stack

The Full-Stack method is characterized by the fact that the food delivery business does everything in-house, from platform development to meal preparation. Sometimes, this method involves the use of a ghost/cloud kitchen. Ghost kitchens are commercial kitchens that can be used by virtual or delivery-only restaurants.[131] People are not allowed to eat in these places, which are used only for cooking purposes. Another interesting feature is that those kitchens could be used by more virtual restaurant brands at the same time, lowering sensibly fixed costs. Players that follow the Full-Stack model are able to control the entire value chain, from the meal preparation to the delivery, managing the customer relationship as best as possible. Clearly, the main drawback is that they cannot externalize costs and a good balance of food and delivery staff is needed to avoid overstaffing or delayed deliveries.

[130] Source: Statista Digital Market Outlook on Online Food delivery.
[131] Source: http://lumosbusiness.com/business-model-innovation-ghost-kitchens/.

2.4.4 Pros and Cons of the online food delivery business model

This paragraph will focus on the main advantages and disadvantages for the online food delivery business, without considering the different models that can be used.

According to research[132] by McKinsey, platforms are sticky. The survey shows that 77% of people interviewed rarely switch platforms.

Online food delivery apps are a sort of intermediary connecting restaurants and customers, this means that their clients are individuals as well as businesses and network effects are crucial. As the number of customers increases, the number of restaurants that want to be a partner of the platform increase and vice-versa.

Moreover, platforms have bargaining power with regards to restaurants, especially if the platform is the market leader, the restaurant has no choice and needs to undergo the platforms' fees.

The last advantage of the online food delivery player is the absence of legal commitment to drivers. Generally, they are not employees of the company, and they work on a contractual basis.

On the contrary, one of the most important disadvantages is the operational complexity. Hiring drivers, find restaurant partners, and developing platforms require time and financial resources. It is also important to highlight that in some markets competitions is very high, as we have seen for the US market.

2.5 Value Chain in the online food delivery industry

To better understand the dynamics behind the online food delivery market and how competitive advantage is created is important to focus on the value chain in the industry.

The value chain model was introduced in 1985 by Michael Eugene Porter, Professor at Harward Business School. In his book, he wrote that "Competitive advantage cannot be understood by looking at a firm as a whole. It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering, and supporting its product."[133]

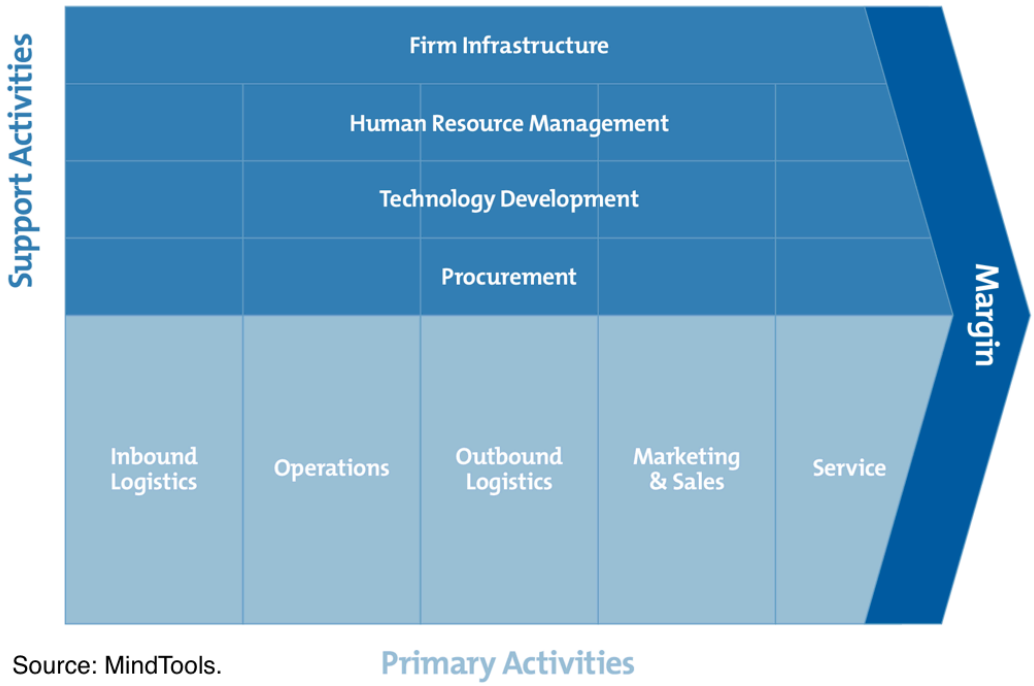
The idea of the value chain can be easily identified graphically, the following chart represents the concept of the value chain as imagined by Porter.

---

[132] Source: McKinsey research "The changing market for food delivery" (https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery).

[133] Source: Porter, Michael E. Competitive Advantage: Creating and Sustaining Superior Performance: with a New Introduction. New York: Free Press, 1998. Print.

Picture 2.2



Source: MindTools.

As we can notice from the picture, Porter divided business activities into primary and secondary.

Primary activities are essential for the firm to run the business and create value; they are divided into inbound logistics, operations, outbound logistics, marketing & sales, and service.

Inbound logistics are all the activities that are needed to store and manage inputs.

Operations include all the processes that are required to create the finished products.

The outbound logistic is very similar to the inbound one, the only difference is that it focuses on outputs rather than inputs.

Marketing & Sales involve all the strategies needed to increase the company's reputation, visibility, and customers.

Finally, the service area includes all the additional solutions that the business offers to its clients in order to retain them and capture all the value from the customer.

On the contrary, the secondary activities are useful to support the primary ones and the business. There are four supporting activities: procurement, technology development, human resource management, and firm infrastructure.

Procurement regards what the company does in order to obtain inputs.

Technological development focuses on R&D and all the steps required to support the company from a technological point of view.

Human resources management is crucial in every company and in every business. It is self-explanatory since it involves the management of human resources.

Finally, there is the firm infrastructure that includes firm systems and functions.

It is important to point out that when Porter idealized the value chain model, he was thinking about manufacturing companies[134], however, the model could be adapted also to the service industry such as the online food delivery one.

After this brief introduction to the value chain, it is possible to consider it from the perspective of an online food delivery platform.

The inbound logistics is the moment and the process through which the rider takes the meal from the restaurant, in this phase it is important that the driver does not break the packaging and arrange the dish in such a way it is not wrecked.

Talking about operations, there is not a process of product creation, and the main activity coincides with the outbound logistics, where it is essential that the rider is on time and that the meal is warm enough when delivered at customers' place.

Clearly, marketing is essential in the online food delivery industry. Since the business is based on network externalities, it is important to acquire as many restaurants and consumers as possible and a good marketing campaign should be created in order to target and acquire both the users.

At the same time, additional services are important to attract users, and good customer care is essential to protect and enhance reputation, which is becoming increasingly important and vulnerable.[135]

Among the supporting activities, technological development is crucial. It is important that the platform is simple and user-friendly in order to attract more people, especially elders that are often not accustomed to technology but have more spending capacity than youngers.

Finally, it is important to spend some words on human resources management. As said before, regardless the industry under evaluation, the ability to retain and attract key employees is crucial.

It is now important to understand which are the characteristics that make the difference in the online food delivery.

According to research by McKinsey, speed of delivery is the most important element for customer satisfaction, and it should be lower than an hour.[136]

---

[134] Source: Keetag Choi. The value chain's use for the service industry.
[135] Source: ISO 31000 on risks.
[136] Source: McKinsey research "The changing market for food delivery".

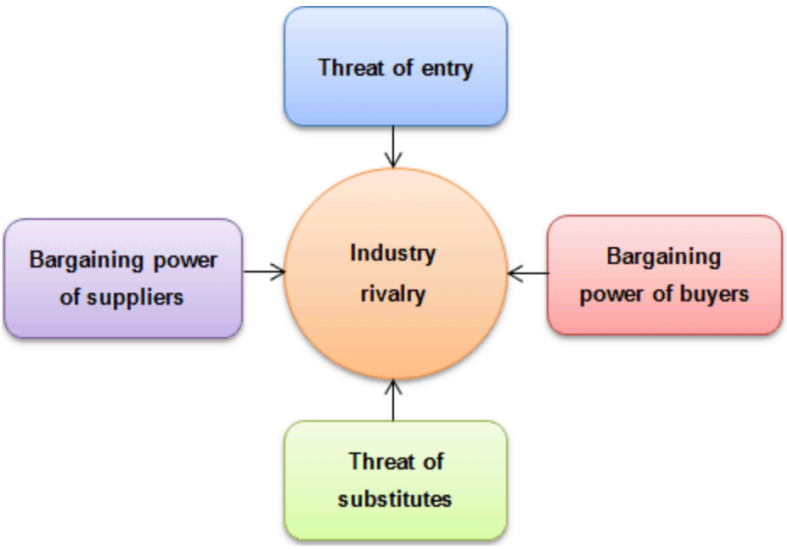
It is vital that orders are on time and meals are warm. At the same time, customers' choices are generally driven by convenience.
Talking about the platform, it is important that users trust it, especially in terms of the security of data and payments.
There should be no bugs either fake review, since most of the time, peer reviews are the main drivers of customers' choice.
Moreover, the platform should be simple to use and with a user-friendly interface, in order to attract as many customers as possible.
Since online food delivery is based on network effects, it is important that the platform has a large number of restaurants and customers, as their numbers are positively correlated. Finally, good customer care support is important to attract users (businesses and individuals) and to enhance platform reputation.

2.6 Porter's five forces in the online food delivery industry

In 1980 the Harward Business School Professor Michael Eugene Porter published "Competitive Strategy: Techniques for Analyzing Industries and Competitors" where for the first time he talked about the five forces model.[137]
This model is used to study the structure of an industry, in order to understand its attractiveness. The five forces envisaged by the model are the threat of entry, bargaining power of suppliers, bargaining power of buyers, the threat of substitutes, and industry competition.
An industry where there are high barriers to entrance, weak suppliers' and buyers' bargaining power, few substitutes and low competition is very attractive and high profits can be generated. On the contrary, an unattractive industry performs all the way around in all the five forces showed.
Picture 2.3[138] shows graphically Porter's five forces.

[137] Source: https://www.investopedia.com/terms/p/porter.asp.
[138] Source: https://strategicmanagementinsight.com/tools/porters-five-forces.html.

Picture 2.3



Source: Strategic Management Insight.

In the following paragraphs, the focus will be on each of the five forces for the online food delivery industry.

2.6.1 Porter's five forces in the online food delivery industry: The threat of entry

This force measures how easy is to enter the business. For existing companies, a higher barrier to entry means lower potential competition, therefore higher profits. At the same time, a company that wants to enter a new industry would like a low barrier to entrance, but once it starts operating potential competition can increase eroding its profits and market share if barriers to entrance remain low.

Barriers to entrance could be the amount of capital required, the importance of patents and government regulation.

From this point of view, it is important to notice that capital requirements could be high, especially for the development of the platform, that should be scalable since the beginning, but at the same time, the industry is not heavily regulated. Indeed, worldwide, despite some differences, regulation is focused on hygiene, but after all, regulation is not a hurdle for the industry. Moreover, as previously said riders generally are not employees of the firm, but they work on a contractual basis.

Finally, the increasing players that are entering the industry suggest that barriers to the entrance are low, as also admitted by Business Insider Australia.[139]

2.6.2 Porter's five forces in the online food delivery industry: Suppliers' bargaining power

This force measures how suppliers are powerful in negotiation, meaning how easily they can increase input price and add clauses that advantage themselves. Suppliers' bargaining power is important because it affects the costs of the firm, thus its profit. Suppliers' power increases when the number of suppliers is low, and the input they offer is rare and unique.

In online food delivery, suppliers can be considered those restaurants that decide to use a third-party platform for the delivery.

In general, restaurants do not have bargaining power and third-party app are able to charge high fees, which are on average 20-30% of the value of the order if the app also provides delivery, otherwise 15%.[140] Restaurants are forced to accept those rates, especially those whose volumes are not enough to cover the high fixed costs associated with delivery. Moreover, the spread of COVID-19 has decreased even more bargaining power of restaurants, since in many countries, delivery was the only way through which they were allowed to operate.

2.6.3 Porter's five forces in the online food delivery industry: Buyers' bargaining power

This force regards the power that customers have in reducing the price or increase the quality of products. It depends on how many clients the company has as well as their importance in terms of revenues. Generally, buyers have bargaining power when they buy large quantities, and they are few.

In the online food delivery industry, buyers are individuals that decide to use online apps and platforms to order food.

In most of the cases, there are a lot of customers, and the volume of their orders is small, they do not have bargaining power and they need to accept the delivery fees that are charged by online food delivery players. However, it is important to notice that as competition is increasing, buyers' bargaining power is doing as well, therefore delivery platforms are forced to provide discounts and promotions to encourage people to use their systems.

---

[139] Source: https://www.businessinsider.com.au/heres-the-big-stat-grubhubs-new-competitors-covet-2015-2.
[140] Source: Deloitte Report: Delivering growth. The impact of third-party platform ordering on restaurants (https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/corporate-finance/deloitte-uk-delivering-growth-abridged.pdf).

2.6.4 Porter's five forces in the online food delivery industry: The threat of substitutes

This force refers to the simplicity through which buyers can find substitute goods or services. Companies that differentiate their offer are able to distinguish themselves from competitors and charge a higher price.

In the online food delivery industry, the threat of substitutes is high due to the nature of the business. Indeed, it usually happens that the same restaurant has agreements with different online food delivery platforms. Moreover, third-party delivery solutions are generally phone apps, meaning that the average consumer has several delivery apps on her/his smartphone. There are several ways through which online food delivery players can try to minimize this threat, and all of them have as the result the differentiation of the offer. From this point of view, having unique restaurant partners, loyalty programs, and a simple and user-friendly platform is crucial.

2.6.5 Porter's five forces in the online food delivery industry: Industry competition

This force refers to how much competitive the industry is, depending on how many competitors there are and their ability to erode market share. Generally speaking, competition is high when there are a lot of competitors, exit barriers are high, products or services are substitutes, and customer loyalty is low.

It is hard to talk about competition in the online food delivery industry since we have seen that there are markets with low players (e.g., China) and others with a lot of players (e.g., the US). However, competition is so high that Forbes has described the industry as a brutal business, where different strategies such as predatory pricing are used to beat the competition and erode market share.[141]

2.7 Pestel analysis in the online food delivery industry

Pestel analysis is used in order to identify the external forces affecting a firm or an industry. Pestel is an acronym that stands for political, economic, social, technological, environmental, and legal.

The following picture[142] shows graphically the idea of Pestel analysis.

[141] Source: https://www.forbes.com/sites/sarwantsingh/2019/09/09/the-soon-to-be-200b-online-food-delivery-is-rapidly-changing-the-global-food-industry/?sh=23ca6febb1bc.

[142] Source: https://blog.oxfordcollegeofmarketing.com/2016/06/30/pestel-analysis/.

Picture 2.4

Source: Oxford College of Marketing.

2.7.1 Pestel analysis in the online food delivery industry: Political

Political factors refer to how much governments and their policies can affect the industry. This industry is not characterized by cross-border activities, therefore what matters is the attitudes that governments have towards online food delivery.

For this reason, it is impossible to talk about political factors in general, and a focus on the specific country is needed.

For example, if we take into consideration the UK market[143], online food delivery platforms made pressure on the UK government to loosen immigration rules to avoid a reduction of work offer in the restaurant industry. Until 31st December 2020, visa decisions are aligned with EU laws, but after Brexit the situation changes dramatically.

At the same time, the UK government is investigating riders' contracts as they seem not to respect the minimum wage established by the law.

Moreover, 2020 has been a particular year, the spread of COVID-19 forced countries and governments worldwide to face the new virus through restrictions on social and business activities. Restaurants all over the world were forced to close and only food delivery was allowed. Therefore, political restrictions adopted in each country boosted the spread of the

[143] Source regarding the UK market: https://businessteacher.org/pestel/deliveroo-pestel.php.

online food delivery industry.

Probably, what will happen is increasing political attention to the online food delivery industry due to the social and economic relevance that it will have.

2.7.2 Pestel analysis in the online food delivery industry: Economic

Economic factors refer to macro-economic trends such as GDP, interest rates, unemployment rates, and exchange currency rates. Those factors are crucial because they affect the revenues of the firm as well as its costs.

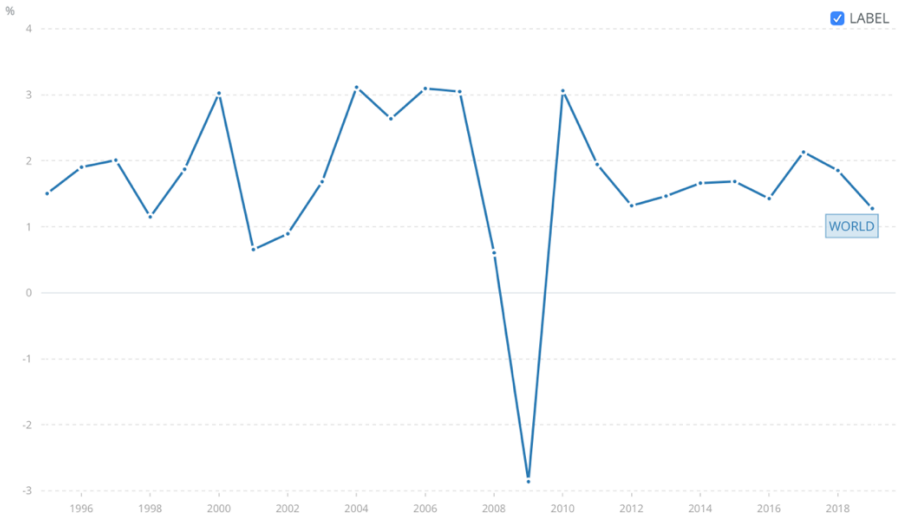
Overall, the world's population is getting richer. Indeed, in the last 25 years, the GDP per capita growth has always been positive with the exceptions of 2009 and 2020 due to respectively the financial crisis of subprime mortgages and the spread of COVID-19.

The increase in the GDP per capita, which can be used as a proxy of individual wealth, has been a positive factor for the development of the online food delivery industry since the number of people being rich enough to order delivery food is increasing.

The following chart[144] shows the GDP per capita growth from 1995 to 2019.

Chart 2.14

GDP per capita growth



Source: The World Bank.

[144] Source: The World Bank data (https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?end=2019&start=1995).

Another important macro-economic factor is the level of interest rates. An environment characterized by low-interest rates is positive for businesses, especially when they operate in a capital-intensive industry.

Nowadays, real interest rates are low. Looking at the top 5 countries for revenues in the online food delivery industry, we see that interest rates are very low with the only exception of India and Brazil. Indeed, according to data from the World Bank, in 2019, Chinese real interest rate was 2.7%, Brazilian 32%, Indian 6.4%, British -1.3%, and American 3.3%.[145]

It is now essential to look at the unemployment rate, the higher it is and easier will be for companies to find employees at better conditions.

In the last 25 years, the world unemployment rate has been stable to 5.8% with the highest peak in 2002 (6.2%) and the lowest in 2008 (5.3%).[146]

Talking about the unemployment rate, it is interesting to notice that online food delivery app and the way in which riders' contracts are created allow people to easily find a source of income, which although is not high, could be important for low-income individuals.

2.7.3 Pestel analysis in the online food delivery industry: Social

Social factors refer to the culture, education, lifestyle, and attitudes of the society. Capturing new social trends is essential to remain and flourish in any industry.

Nowadays, thanks to ICT people are accustomed to do almost everything at home.

In the past, people needed to go to libraries to do research, to the post office to send a letter, to cinemas to watch the latest movie and so on. Now, the situation has changed dramatically, people can search for whatever they want on the web in a fraction of a second, can send real-time messages and emails, can access platforms such as Netflix or Amazon Prime Video to watch thousands of films on demand. People's behaviors and lifestyles are changing, they are accustomed to do everything at home. While in the past to eat prepared meals, they needed to go to restaurants, nowadays is the restaurant that enters people's homes through delivery services. Thus, this new social habit is boosting online food delivery.

At the same time, it is worthy to highlight that people attention to healthy food is increasing. This is the result of the educational process and laws developed by countries that encourage the use of healthy food, and for this reason is reasonable to believe that more healthy foods will be sold through delivery, which is historically associated with unhealthy meals such as fast

[145] Source: The World Bank (https://data.worldbank.org/indicator/FR.INR.RINR?end=2019&start=1961).
[146] Source: The World Bank (https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?end=2020&start=1995).

food or pizza.

Another important aspect to be considered for the online food delivery industry is the safety of riders. Unfortunately, stories of riders that severely injured or died are increasing, and public opinion, as well as governments, are focusing on this aspect. For example, Deliveroo was investigated in the UK for low safety standards, and the government allegations on Deliveroo has increased sensibly its costs.[147]

2.7.4 Pestel analysis in the online food delivery industry: Technological

Technological factors consider how much technological development can affect an industry. The online food delivery industry is driven by technology.

Previously, it was common to call restaurants or pizzerias to place the order, without having the possibility to look at reviews and prices. With the introduction of the internet and of online delivery platforms, customers' behavior changed.[148]

Technology has changed a lot in the food delivery industry. Now, people can download apps such as Just Eat or Deliveroo and in few minutes can look at closer restaurants' menus and reviews. With just a click food is ordered and paid, and customers need only to wait for the rider to come.

To increase the simplicity, some food delivery apps have partnered with Google to allow customers to buy directly from Google Maps app.

An interesting innovation in the online food delivery industry includes delivery trucks.[149] Pizza is prepared while the truck is going to customers' address, in this way pizza will be delivered as warm as in the restaurant.

Another promising technology that is under test in places such as Washington D.C and California, is a full automatized food delivery, using robots. A similar solution is provided by Domino's drone delivery in New Zeeland.[150]

Technology can be used to make more efficient delivery, reducing fuel cost and timing. As seen previously, timing and punctuality are one of the main drivers of customer satisfaction. From this point of view, it is worthy to mention Deliveroo, which experienced automatic kitchens which directly communicate the order via the app.[151]

---

[147] Source: https://businessteacher.org/pestel/deliveroo-pestel.php.
[148] Source: https://doshii.io/the-food-delivery-industry-and-technology/.
[149] Source: https://percentotech.com/bobbyjdavidson/how-technology-is-revolutionizing-food-delivery/.
[150] Source: https://percentotech.com/bobbyjdavidson/how-technology-is-revolutionizing-food-delivery/.
[151] Source: https://businessteacher.org/pestel/deliveroo-pestel.php.

Therefore, technology is key in the online food delivery industry, it is one of the main elements through which platforms can differentiate themselves.
After all, without the internet and ICT such a sector would not have existed, therefore technological development is crucial.

2.7.5 Pestel analysis in the online food delivery industry: Environmental

Environmental factors involve the attention and the pressure that firms and industries have on being environmentally friendly.
Nowadays, corporate social responsibility is increasing in importance as the letter from the CEO of BlackRock Larry Fink strongly suggested. In the letter, the CEO stated that "Investors are […] recognizing that climate risk is investment risk […]. And because capital markets pull future risk forward, we will see changes in capital allocation more quickly than we see changes to the climate itself. In the near future – and sooner than most anticipate – there will be a significant reallocation of capital".[152]
Environmental, social, and governance (ESG) factors are becoming crucial in the current environment. Indeed, there are rankings judging a firm's corporate social responsibility as well as ESG.
The food delivery industry needs to be careful about its carbon footprint. It is important that platforms use zero or low emissions vehicles.
From this point of view, it is relevant to mention how Deliveroo is addressing the problem.
Indeed, the company encourages the use of bicycles for delivery, which I believe is a strategic choice for several reasons. First, bicycles are zero-emissions vehicles, increasing the reputation of Deliveroo, especially from the point of view of those customers that pay attention to the environment. Moreover, bicycles have the possibility to use cycle paths avoiding traffic and reducing distances and delivery time.
To summarize, it is important for the online food delivery industry as it is for other sectors to be as environmentally friendly as possible.

2.7.6 Pestel analysis in the online food delivery industry: Legal

Legal factors are essential in every industry and country. It is important for a firm to understand under which regulation they are as well as fully comply with it.

[152] Source: https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter.

Laws and regulations are vital for the online food delivery industry, and clearly, each country has its own regulation, for this reason in this paragraph the focus will be on some global shared points, instead of focusing on a specific legislation.

First, it is important to specify that the business model adopted by the player is a key determinant of the regulation they fall in. Indeed, if the platform provides only delivery the main legal hurdle will be on the delivery safety as well as food conservation during the trip. On the contrary, if the delivery is in charge of the restaurant, regulation is more severe. Indeed, in this case, in addition to the delivery's laws and restrictions, restaurants need a license to operate to guarantee the protection of public health.

It is important to highlight that during the spread of COVID-19, restaurants and delivery companies needed to fulfill additional requirements to guarantee uncontaminated food.

A lot of delivery firms have been fined due to a lack of attention to the safety of runners as well as the contractual relation they sign.

In the next future, we will probably assist a change in the legislation with the aim to protect delivery riders, both from an economic and health perspective. Unfortunately, the number of runners who die to deliver food as fast as possible is increasing, and some regulatory changes are required to stop the trend.[153] At the same time, most runners are not employees of the firm, and this brings to the situation in which their salaries are often less than the minimum wage established by the law.

Therefore, it is reasonable to believe that soon some important changes will occur in the online food delivery industry, increasing the cost for online food delivery players.

2.8 Impacts of online food delivery industry[154]

The online food delivery industry is young, and after the analysis of how external factors can influence it, the focus will be on how the industry is changing the world from an economic, social, and environmental perspective.

[153] For further information see at https://www.ft.com/content/a27f1a55-9436-41c2-9ef6-ea868e8ee964.

[154] Main Source: Charlene Li, Miranda Mirosa, Phil Bremer, 2020. Review of Online Food Delivery Platforms and their Impacts on Sustainability.

2.8.1 Impacts of online food delivery industry: Economic

The rise of the online food delivery industry is having strong economic consequences. As seen at the beginning of the chapter, this sector is growing at a fast rate. Therefore, it is essential to understand which is the economic impact of this industry.

First, the rise of online food delivery has created a lot of job opportunities directly and indirectly. A lot of programmers are hired to develop and maintain platforms. At the same time a lot of people, especially youngers find working as a rider one of the best job opportunities in the market. Indeed, despite low salaries, the job leaves the possibility to organize the work as the rider prefers, and no specific skills are required.

Indirectly, other businesses were positively impacted by the wave of online food delivery. Indeed, the demand for electric bicycles, as well as packaging, increased.

However, although the online food delivery industry gives jobs to thousands of people, at the same time there are concerns on poor working conditions.

Clearly, the main industry that has been impacted by the online food delivery industry is the restaurant one.[155] It is difficult to establish whether the overall effect of online food delivery on restaurants has been positive or negative, and different studies reach different results.

First, for many restaurants, it would be impossible to deliver without third-party platforms, due to the high fixed costs associated with that. But it seems that while at the beginning of the relation between the restaurant and the platform, the impact is positive, in the long run, the effect of high commissions overcome the incremental volumes derived by the online delivery, this happens because when a new restaurant joins the platform it is promoted for a limited lapse of time and appears on top of the restaurants' list.

There are several advantages that restaurants can obtain through a partnership with an online food delivery app.

Firstly, restaurants are able to better manage delivery service, if they focus only on food preparation and outsource delivery, instead of having a proprietary delivery service. At the same time, third-party platforms provide restaurants the technology they need to satisfy new customers' desires, adapting better to the changes in the environment. Indeed,

[155] In addition to the abovementioned paper, additional information regarding the effect of online food delivery is taken from a Deloitte Research entitled "Delivering growth. The impact of third-party platform ordering on restaurants" (https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/corporate-finance/deloitte-uk-delivering-growth-abridged.pdf).

third-party platforms can act as a sort of website for the restaurants since basic information about menus and prices are shown in the app.
Operating in a third-party platform allows restaurants to increase customers as well as visibility and exploit opportunities using data insights.
It seems that online food delivery helps the growth of the restaurant industry, indeed not all online orders are substitutes for offline ones.
To summarize, the economic effect of the online food delivery industry is positive in terms of people employed, but not so clear in terms of restaurants' profits and profitability.

2.8.2 Impacts of online food delivery industry: Social

Online food delivery is changing our lifestyle; it is impacting not only the way in which we eat, but also human and family relations. In the past, almost every family had a routine, and preparing and cooking meal was an occasion to spend time with family members. Nowadays, due to the frenzy of our society as well as faster alternatives to cooking such as online food delivery, it is increasingly hard to find families that still use cooking as a moment to spend time together.
Online food delivery is able to satisfy all customers' needs, allowing consumers to order even at night. Probably, its ability to satisfy almost every customer's requests is its factor of success. However, online food delivery could create a serious health problem, encouraging a sedentary lifestyle.
As previously said, another big issue that must be addressed are the high numbers of incidents involving riders. Often, their commissions depend on how fast they are able to deliver food, encouraging them to rush with dangerous situations for themselves and the public health. The model created by platforms allows them to charge high fees to restaurants, that not having bargaining power are forced to accept such conditions. However, this practice is increasingly under the magnifying glass of society, with several movements born aimed at boycotting online food delivery.
Finally, even though online food delivery allows restaurants to operate under the COVID-19 pandemic, it is also true that riders were forced to work and be exposed to the risk of infection.

2.8.3 Impacts of online food delivery industry: Environmental

As seen before, there is increasing attention to the environmental impact of business.
It is worthy to analyze briefly which is the effect of online food delivery on the environment.

One of the main problems regarding online food delivery from the environmental point of view is the fact that packaging is required to deliver products. Generally, plastic bags and boxes are used because they are cheap, light, and resistant enough. However, it is important to notice that regarding plastic waste we cannot generalize, since there are countries such as China where there is a large use of plastic, but other such as the UK, where less polluting alternatives are adopted. At the same time, it is appropriate to mention that there are several online food delivery players that are trying to reduce their footprints. Besides the Deliveroo case explained in §2.7.5, the Chinese delivery Ele.me provides customers the possibility to avoid receiving cutlery, however it seems that when customers opt for this option, they still receive them since it is less time consuming for restaurants to send cutlery instead of distinguishing orders with and without them.[156] This is the reason why platforms such as Uber Eats decided to make the no cutlery option the default one since it seems to be more effective to reduce their consumptions.[157]

Another debated topic is food waste. It is not clear whether online food delivery increase or decrease food waste. It often happens that people order more than needed due to the fact that sometimes "minimum value order" is required to place the order or have free delivery. Moreover, ordering online does not allow people to know the size of the portion, causing over needed orders. However, although there are reasons that explain why online food delivery can increase food waste, at the same time it seems that meals prepared by restaurants cause less food waste than those prepared at home. Therefore, probably the net effect is that online food delivery does not increase food waste.

Finally, another problem connected to online food delivery is that it involves delivery to which a carbon footprint is associated. However, there are several companies that try to reduce it using bicycles or electric vehicles, but it is important to not underestimate the environmental impact associated with the creation and disposal of batteries.

To summarize, the impact of online food delivery on the environment is not dramatic, the situation change depending on the country under evaluation, but there is still room for improvements.

[156] Source: Wang Chen, 2018. Food Delivery Apps Skewered for Creating Plastic Waste (https://archive.is/GaAAe).

[157] Source: Nadine Zylberberg. Food Delivery Apps are Changing the Way We Eat (https://archive.is/Y6g3L).

2.9 IPOs in the US online food delivery

The following chapter will focus on the IPO of DoorDash which is the market leader in the US online food delivery industry, for this reason this paragraph will give a picture of previous IPO of companies operating in it.

As seen before, the US market is characterized by 4 big players: DoorDash, UberEats, Grubhub, and Postmates.

Postmates, a private company, has been acquired in a stock-for-stock deal by Uber in December 2020[158] for $2.7 billion[159].

UberEats is a division of Uber, which was listed in the New York Stock Exchange (NYSE) on 9th May 2019[160]. Since 75.95%[161] of total revenues come from Uber rides, its IPO cannot be considered representative of the online food delivery industry.

Grubhub is the third player in the US online food delivery industry by revenues and Just Eat has recently proposed $7.3 billion deal for its acquisition.[162] Regardless, the result of the proposed acquisition, it could be interesting to focus on Grubhub IPO, before analyzing the DoorDash one.

2.9.1 IPOs in the US online food delivery: Grubhub[163]

Grubhub was founded in 2004 by two web developers. It operates only in the US in 4,000 cities, it features 300,000 restaurants and 245,000 of them are partners.
It processed more than 680,000 daily orders in 2019 for total revenues of $1.3 billion, resulting in a market share of about 20%[164].

The company was listed in 2014 in the New York Stock Exchange under the ticket of GRUB. The IPO price was $26 and 7.4 million shares were offered, allowing the company to raise $200 million.[165]

It is interesting to notice that the closing price of the first trading day was 31% more than the initial one, suggesting that the market perceived well the IPO and that also in this case there has been the IPO discount.

---

[158] Source: https://www.businesswire.com/news/home/20201201005727/en/Uber-Completes-Acquisition-of-Postmates.
[159] Source: https://www.ft.com/content/d3f3919f-63d6-453f-82f3-da77dc3bf8df.
[160] Source: https://www.cnbc.com/2019/05/10/uber-ipo-stock-starts-trading-on-the-new-york-stock-exchange.html
[161] Computed as revenues from Uber rides/total revenues, using data from Uber Annual Report 2019.
[162] Source: https://www.cityam.com/just-eat-takeaway-shareholders-approve-grubhub-acquisition/.
[163] Main source: Grubhub wep page.
[164] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4.
[165] Source: https://money.cnn.com/2014/04/04/investing/grubhub-ipo/.

The following chart[166] provides information on Grubhub's share price in comparison to the NYSE composite index.

Chart 2.15

Grubhub share price vs NYSE composite index

Source: Yahoo Finance.

As we can notice from the chart, in the last 12 months Grubhub returns have always been higher than the NYSE composite index one. Both the index and the company share price were negatively affected by the spread of COVID-19, as we can notice from their performances between March-April 2020, however, Grubhub's shares recover faster. Indeed, the lowest share price registered by Grubhub was $30.13 (23rd March), whereas the highest $84.34 (16th October).[167]

2.10 New Fintech Idea: DirectFarm

In this paragraph, the focus will be on DirectFarm, which is a Fintech idea I developed during the Fintech course at BI Norwegian Business School with Kevin Graziani, Endre Offerdal, and Fredrik Wean Edvardsen. Even though it has not been idealized to deliver prepared meals, its activities are related to the online food delivery industry.

[166] Source: Yahoo Finance as of 27th December 2020 (https://finance.yahoo.com/quote/GRUB/).
[167] Source: Yahoo Finance on of 27th December 2020 (https://finance.yahoo.com/quote/GRUB/).

According to J.P. Morgan[168] online penetration for grocery delivery is at a low level, and DirectFarm's aim is to exploit this opportunity.

DirectFarm is a fintech solution, idealized for the Norwegian market, that directly connects customers and farmers. It has been created because farmers lose up to 70%[169] of the value created, which is taken by all the middlemen that are involved in the current distribution system.

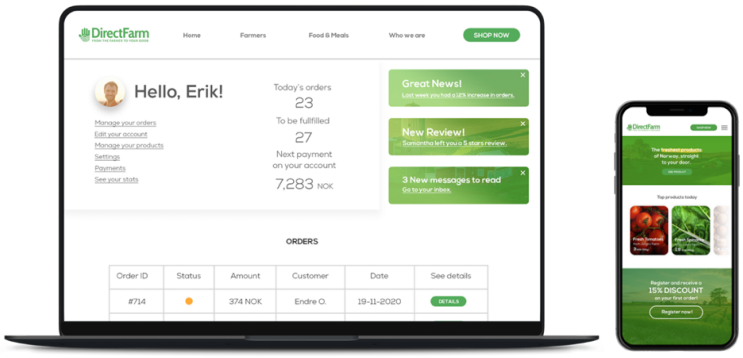
The solution intends to solve this problem by providing a platform that gives farmers a more organized and efficient way of selling their products directly to consumers, by having farmers signed up to sell their products, and consumers able to organize available products and farmers geographically.

The service will serve as a supplement for farmers instead of selling to Nortura or other large players (which they can do with most of the production) and can serve as an effective tool for smaller scale-farmers. This way, farmers can achieve economies of scale and be hedged[170] (selling to traditional value chain), but gaining a premium using our solution.

In order to test the market, we developed a survey[171] which is divided between individuals and SMEs operating in the food industry, as the solution is going to operate in the Business-to-Consumer (B2C) as well as in the Business-to-Business (B2B).

DirectFarm is a platform that should be developed both as a mobile app and a web page and the following picture provides a concept for the platform interface.

Picture 2.5



[168] Source: J.P. Morgan article "What's cooking in online food delivery?"

[169] Source: our analysis of the Norwegian eggs market, more information will be provided in the next paragraph.

[170] In Norway, farmers have agreements with large players such as Nortura, where large distribution companies are forced to buy all the production from the farmer, regardless the volume. This is possible because the Norwegian government try to sustain local farmers as much as possible.

[171] In the following link there is the survey: http://fintech.fabbricantidelweb.it.

In order to understand better what is needed for the platform, the idea is to develop a concierge MVP[172] as a pilot or basic version of the platform, where activities will be run manually in order to get insights. With the insights gathered, we will develop our platform with a no-code platform such as bubble.io that is cheaper than a native development approach. This, allows us to gather data, control relations, and develop all the features that we need, utilizing third-party services. Through bubble.io, costs will be cut by not building entirely a website and related apps from scratch, and therefore we believe our platform cost will be reasonable.

Talking about competitions, potential competitors could be REKO Groups[173] on Facebook. DirectFarm is intended to address the time-consuming process and uncertainty regarding the REKO-rings, while offering both the farmers and customers more competitive prices than the current distribution mechanism does. The time frame for farmers and consumers will be reduced, giving the option of sorting for products and delivery which the REKO rings do not.

As the platform intends to digitalize the essence of the REKO-rings, we would benefit from a partnership by the union behind the REKO-rings. The current method through REKO-rings is mostly voluntary driven and we do not expect to face frictions implementing our services. Hence, as we intend to replace this current method, we mainly do not offer deliveries, but rather a platform where distribution and pickup can be organized. This will let regional and centralized farmers have the option of delivery within a KM proximity radius. The platform can utilize the current model of REKO-rings with a one-time delivery per week, for cost-effectiveness. Our aim is not to distribute through traditional distribution channels, but to optimize them for the farmer and consumer, giving a range of options such as pick up, delivery, or 3rd party delivery at the meeting point.

Moreover, although at the beginning DirectFarm would not offer delivery, it is reasonable to believe that we would introduce distribution at a later stage through subscription-based services like Helt Hjem, Kolonial, and other one-time delivery services.

Another potential competitor is Matfra.no AS that has implemented a platform like DirectFarm. However, the business model of Matfra.no does not consider the value of economy of scale by having fixed transaction fees and more or less constant marginal costs associated with the platform. We, therefore, operate with a model that incentivizes farmers to achieve a larger turnover as the farmers' marginal costs are lower with the use of monthly subscriptions. Indeed, our main income comes from subscriptions, and we are going to offer subscription-free options

[172] Source: Ries, Eric. The Lean Startup: How today's entrepreneurs use continuous innovation to create radically successful businesses. New Tork: Crown business, 2011.

[173] They are Facebook groups that organize periodically markets where products are sold directly by farmers.

to small-scale producers up to NOK10.000 (otherwise NOK200 per month). In this way, we are able to scale more efficiently. For example, if the farmer would sell through Matfra.no for NOK5.000 each month, their transaction fee would be NOK200[174] – the same as our monthly subscription. Hence, if the farmers would sell more, they would achieve more revenues through our platform, giving us a large competitive advantage in acquiring producers.

It is important to highlight that DirectFarm is not going to replace the current distribution system, but rather supplement it. Nortura has an obligation to receive goods from farmers, while we would give them an option to sell their goods at a premium, without the middlemen. The products that farmers fail to sell on DirectFarm, could be sold to Nortura, however at lower margins.

The platform is intended to serve both the B2C and B2B markets. This can be achieved as the businesses will have their own accounts and make orders through the platform. Moreover, as the deliveries can be organized by the farmers themselves, there are few adjustments needed to the platform in order to access both markets. In addition, for larger orders and customized contracts, we add an additional option for the businesses to directly contact the farmer with wanted order, in this way they can price and audit their transactions through the platform.

The platform described up to now is only a pilot version that is needed to test market interest and gain popularity, but later on, we will try to enrich our offer through the introduction of premium services for fees, such as promotional features and competitive loans to farmers (using proprietary data), sale of data to centralized institutions (i.e., governments) and our certification, which attest the high quality and environmental standards to farmers that are willing to pay for it.

In case the platform is going to be identified as disruptive worldwide an internationalization process would be started going country by country, starting from those where agriculture is key such as Italy or Greece.

2.10.1 New Fintech Idea: DirectFarm business case[175,176,177,178]

In the previous paragraph, it has been specified that 70% of the value generated in the Norwegian egg market is lost by farmers, due to all the middlemen involved in it.

[174] Using their current transaction fee of 4% during the pandemic (source: https://www.matfra.no).
[175] Information on Norwegian market: https://www.bondelaget.no/konsesjonogkvote/, https://kolonial.no/sok/?q=egg.
[176] Information on Norwegian market: https://kolonial.no/sok/?q=egg.
[177] Information on Norwegian market: https://medlem.nortura.no/prislister/avregningspriser-egg-article17909-11969.html.
[178] Information on Norwegian market: https://www.matprat.no/artikler/ravarer/tall-og-fakta-om-egg/,

In this paragraph, information will be provided on the assumptions made and why the solution allows farmers to earn more without charging higher prices to consumers focusing on the egg case study.

The concession for hens in Norway is 7,500 and let's assume they effectively produce for 7 months. Let's assume that the daily average production for a large producer is 3000 eggs. The average price in store of a pack of 12 eggs is NOK36.5 (NOK3.04 per egg). The farmer is paid on average NOK13.2 per Kg for medium-sized eggs (approx. 15 eggs weight 1 kg), that is NOK0.88 per egg. The difference between the price per egg in-store and the price at which the farmer sale is NOK2.16. The average Norwegian consumes 211 eggs per year and is willing to pay a premium of NOK2[179] (customers' willingness to pay approach) to buy eggs locally. Therefore, the farmer will be able to charge NOK2.88 (=2 + 0.88) per egg, selling a pack of 12 eggs for NOK34.56 (the cost of the packaging is NOK0.9). As we can notice the price charged to consumers will be still lower than the one charged by the store and the farmer will earn much more, it is a win-win solution.

[179] Source: Result from DirectFarm survey (http://fintech.fabbricantidelweb.it).

Chapter 3 – IPO case: DoorDash

3.1 Introduction[180]

The US online food delivery market is very competitive, with four main players: DoorDash, Uber Eats, Grubhub, and Postmates. Together, they represent 93% of the US online food delivery industry.

In 2020, DoorDash had a market share of 45%, an extraordinary number, considering that its market share is twice as much as the Uber Eats one, which is the second player with a market share of 22%.

What makes DoorDash numbers even more exciting is the growth the company was able to experience in the past 4 years. Indeed, in 2016 it was the third-largest player with a market share of about 5%.

DoorDash has been able to erode market share from Grubhub, which represented in 2016 70% of the US online food delivery market, whereas in 2020 its market share was 18%. This allows us to understand how competitive and dynamic the market is, and it is important for platforms to invest in new technologies and marketing in order to maintain their competitive position.

The following paragraphs will focus on DoorDash and its IPO, a pre-ipo valuation will be simulated as well.

3.2 DoorDash[181]

DoorDash is the leader of the US online food delivery industry, and regardless of the uncertainty of the markets due to the spread of COVID-19, the firm has been able to complete its IPO on 9th December 2020, raising $3.37 billion[182].

In the next paragraphs, the focus will be on DoorDash, and in particular on its economic-financial performance as well as its risks in order to have a complete overview of the firm, which is essential to understand better its IPO.

[180] Source of data for the US online food delivery industry: https://www.businessofapps.com/data/food-delivery-app-market/.
[181] Main source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).
[182] Source: https://www.bloomberg.com/news/articles/2020-12-09/doordash-set-for-trading-debut-after-ipo-raises-3-37-billion.

3.2.1 DoorDash: Company overview

DoorDash was founded in January 2013, when the founders, Tony Xu, Evan Moore, Stanley Tang and Andy Fang, launched a website displaying menus of local restaurants in Palo Alto, California.

DoorDash's mission is to grow and empower local economies, indeed they founded the firm to be a merchant-first business. They help restaurants to thrive in the current environment, which is convenient driven and where customer expectations are dynamic. Indeed, they believe that the main reason why they are a market leader is the added value they provide to restaurants and small businesses.

Nowadays, they connect more than 390,000 merchants, 18 million consumers, and 1 million Dashers (drivers) in the US, Canada, and Australia.

According to the firm, they have been able to grow quickly, becoming the market leader thanks to the investments in sales, marketing, and promotions, while at the same time reducing costs improving platform efficiency.

Talking about financial statistics, DoorDash revenues in 2019 were $885 million, three times the value registered the previous year ($291 million), whereas in 2020[183] the company registered $1.9 billion in revenues, almost four times the value registered in 2019 for the same period. However, it is important to specify that despite increasing revenues, the corporation has not been able to generate profits, however, the loss in 2020[184] ($149 million) was sensibly lower than in 2019 ($667 million).

In order to provide a detailed company's overview could be interesting to focus on DoorDash's culture, since culture is a crucial driver for the success of a company. In particular, there are three main values, that can explain why the firm has been able to thrive in the industry: seek truth, become 1% better every day and be customer-obsessed, not competitor focused. Indeed, DoorDash's activity is data driven (seek truth), they try to always improve their offer, focusing on customers rather than competitors.

Finally, it is worthy to mention the company's commitment to diversity and inclusion in its workforces. To achieve this goal, several projects have been created to enhance gender and cultural diversity within the corporation.

[183] Until September 2020.
[184] Until September 2020.

3.2.2 DoorDash: Corporate governance and committees

The board of directors (BOD) is composed of 10 members, the CEO and 9 non-executive directors.

There are three BOD committees: Audit Committee, Leadership Development, Inclusion, and Compensation Committee, and Nominating and Corporate Governance committee.

The Audit Committee has several duties it reviews and discuss the scope and result of the audit, reviews financial statements and accounting policies, oversees the compliance with legal and regulatory requirements on accounting matters, oversees the policies on risk management, and compliance with the code of conduct and approves related party transactions.

The Leadership Development, Inclusion, and Compensation Committee reviews, approves, and makes recommendations on executive officer compensation. Moreover, it evaluates the performance of executive officers and reviews and discusses with the BOD the corporate succession and development plans for the executive.

The Nominating and Corporate Governance Committee identifies, evaluates, selects, and makes recommendations on the election of the BOD, makes recommendations on the BOD composition, evaluates the performance of directors and the adequacy of corporate governance practices, and oversees developments in corporate governance practices.

The following table[185] provides information on DoorDash BOD and executives.

Table 3.1

Executive Officers and Directors

The following table provides information regarding our executive officers and directors as of September 30, 2020:

Name	Age	Position(s)
Executive Officers:		
Tony Xu	36	Chief Executive Officer and Director
Prabir Adarkar	43	Chief Financial Officer
Christopher Payne	52	Chief Operating Officer
Keith Yandell	41	Chief Business and Legal Officer and Secretary
Non-Executive Officer Directors:		
Shona Brown	54	Director
L. John Doerr	69	Director
Andy Fang	28	Head of Consumer Engineering and Director
Jeffrey Housenbold	51	Director
Jeremy Kranz	45	Director
Alfred Lin	47	Director
Stanley Meresman	73	Director
Maria Renz	52	Director
Stanley Tang	27	Head of DoorDash Labs and Director

(1) Member of our audit committee
(2) Member of our leadership development, inclusion, and compensation committee
(3) Member of our nominating and corporate governance committee
Source: DoorDash IPO Prospectus.

To conclude this paragraph on DoorDash's corporate governance, it could be interesting to focus on executive compensation. In 2019 the CEO and Co-founder Tony XU received total

[185] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).

compensation of $300,261, the COO Christopher Payne of $5,947,895, and the Chief Business and Legal Officer and Secretary Keith Yandell of $5,929,770. The following table[186] summarized their compensation and how it is split.

Table 3.2

Summary Compensation Table

The following table provides information regarding compensation paid to our named executive officers for the year ended December 31, 2019:

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)(1)	All Other Compensation ($)(2)	Total ($)
Tony Xu						
Chief Executive Officer	2019	300,000	—	—	261	300,261
Christopher Payne						
Chief Operating Officer	2019	350,000	75,000(3)	5,522,634	261	5,947,895
Keith Yandell						
Chief Business and Legal Officer and Secretary	2019	346,875(4)	60,000(3)	5,522,634	261	5,929,770

(1) The amounts reported represent the aggregate grant-date fair value of the RSUs awarded to the named executive officers calculated in accordance with ASC 718. These amounts do not reflect the actual economic value that may be realized by the named executive officer. The assumptions used in determining the grant date fair value of the RSUs reported in these columns are set forth in Note 2 to our consolidated financial statements included elsewhere in this prospectus.
(2) The amounts reported consist of payments on behalf of Messrs. Xu, Payne, and Yandell for basic life insurance and accidental death and dismemberment insurance.
(3) The amount reported consists of a discretionary bonus paid in 2020, in recognition of our company performance in 2019 and the individual's contributions to that performance.
(4) Effective February 16, 2019, Mr. Yandell's annual base salary was increased from $325,000 to $350,000.

Source: DoorDash IPO Prospectus.

3.2.3 DoorDash: Platform and Business Model

The DoorDash's platform connects merchants, consumers, and riders, and it has been built to be as much efficient as possible. The scalability of the platform has been recognized by the firm as one of its competitive advantages during its extraordinary growth.

The players connected to the platform are impressive, DoorDash is able to connect 390,000 merchants, 18 million consumers, and more than 1 million riders, called Dashers.

The platform is based on proprietary technology, each order provides information that is analyzed by the algorithms of the company to improve efficiency and effectiveness.

The platform is empowered by three forces that create a virtuous cycle: network effects, economies of scale, and branding affinity.

Network effects are crucial for business development, as the number of restaurants increases, the numbers of customers and Dashers do as well, encouraging other merchants to use the platform and creating a virtuous cycle.

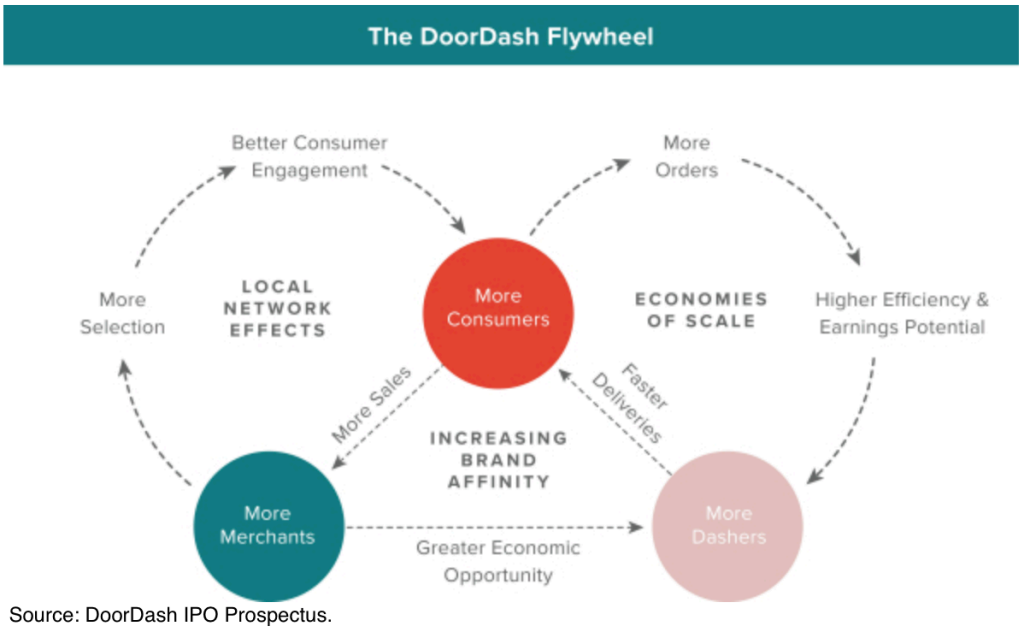
Economies of scale are crucial as well. As more consumers join and use the platform, more revenues and opportunities are generated for restaurants and Dashers.

The abovementioned forces strengthen the firm's reputation and brand awareness that positively impacts the other two forces.

[186] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).

The following picture[187] shows the relation between merchants, Dashers, and consumers as well as the virtuous cycle explained above.

Picture 3.1



Source: DoorDash IPO Prospectus.

The growth of DoorDash is based on increasing the number and improving the experience of their users, this is true for merchants, consumers, but also riders.

Additional services for merchants are introduced to increase their numbers and engagement. The platform tries to increase the number of customers by reducing costs and increasing the availability of different food categories. At the same time, continuous investments are done to improve customer experience.

Talking about Dashers, the firm tries to improve the work experience of its riders, simplifying the process through which people can become runners.

Talking about the business model, it is essential to highlight that most of their revenues come from fees paid by consumers and commissions charged to merchants.

It is important to specify that commissions are paid only by those restaurants that have a contractual agreement with DoorDash, since the company, in order to increase the number of restaurants, allows merchants to operate in the platform even without a contractual agreement. Partner merchants receive marketing and additional services from DoorDash (see §3.2.4.1).

[187] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).

DoorDash's revenues are generated also through customers, that pay fixed delivery fees and variable ones, depending on the value of the order. Moreover, additional revenues from customers are generated through DashPass, which is a subscription product, that allows members to receive free delivery and lower fees.

Additional turnover is generated through Drive, DoorDash's white-label logistics service, by collecting fees from merchants that use the firm's service to deliver orders that they generated through their own channels.

An example[188] explains better how revenues are generated from an order.

Let's suppose the platform charges consumers a total of $32.90 which includes the value of the order ($22.40), fees ($5.50) and taxes ($1.70), and an optional additional tip ($3.30). The merchant will be charged by a commission and the total it will receive is $20.10, which derives from the value of the order, plus taxes minus the commission it must pay to DoorDash, equal to $4.00.

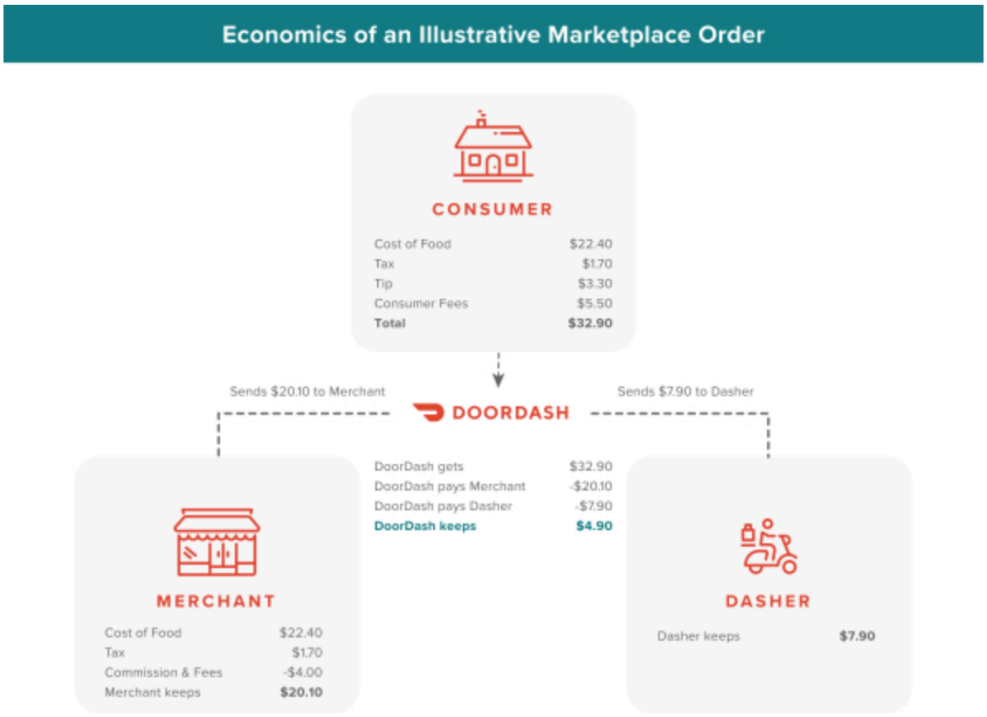
Dashers receive an amount of money depending on the estimated distance, duration of travel as well as the desirability of the order. Moreover, the platform will give the entire tip to riders. In this example, the total value obtained by the rider for the delivery is $7.90 which includes the $3.30 tip provided by the customer.

The platform retains the net amount of fees charged to the consumer and commissions charged to the partner merchant less any value shared with the runner. In this example, the total revenue for the platform generated by the order is $4.90.

The following picture[189] provides a graphical summary of the example explained above.

[188] Source: Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).
[189] Source: Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).

Picture 3.2



Source: DoorDash IPO Prospectus.

3.2.4 DoorDash: A win-win solution

As said by the company in its IPO prospectus, the main reason why the company has been able to become the market leader is its ability to attract customers and merchants. Thus, it is crucial to understand why businesses and individuals are willing to use the DoorDash solution.

The platform could be defined as a win-win solution, where merchants, customers, and Dashers are better off by the firm's activities. Therefore, it is important to analyze the relation the company has with those players.

3.2.4.1 DoorDash: A win-win solution (Merchants)

As said in the firm overview, DoorDash is a merchant-first business, and several are the reasons why businesses use its platform.

First, the platform increases demands. A survey conducted by Cowen shows that 80% of delivery orders are incremental to merchants' on-premise businesses.[190]

[190] Source: Cowen, Digital Delivery: Survey Says Inflection is Underway, 2019.

At the same time, the platform is created in such a way that perfectly fits the operational workflows of restaurants, and when challenges arise, the firm does its best to introduce solutions, with the aim to reach operational excellence.

There are several services offered to merchants.

First, each partner merchant receives tablets and the DoorDash's merchant software portal that allows having a holistic view of its business.

Restaurants have the possibility to use the DoorDash marketplace with more than 18 million customers. Additional consumer flow is generated through the pickup service, which allows consumers to place orders in advance, skip lines, and pick up food with no fees.

At the same time, DoorDash for work is a solution that provides merchants with a large group of orders and catering orders for events.

The platform allows personalization through algorithms that exploit consumer past orders and other factors.

As said in previous chapters, the safety of payments is crucial to instill trust in the platform. DoorDash uses third-party payment processor to handle payments from consumers. From the technological point of view, crucial is the support provided by the platform to merchants.

First, businesses are able to use the merchant tool to edit and update their menus. The merchant software provided by DoorDash allows restaurants to look at trends and insights, allowing them to run the business accordingly.

DoorDash provides customer support, increasing its reputation as well as the merchants' one.

Moreover, the platform has been created such that it is able to integrate with alternative systems and workflows adopted by merchants.

3.2.4.2 DoorDash: A win-win solution (Consumers)

Technology has changed and is still changing consumers' behavior. Consumers ask for products and services which are convenient and that can be purchased easily and quickly. In the past, the physical place offered by merchants was a part of the customer experience, but nowadays, especially in some sectors, this element is reducing in importance, forcing businesses to change accordingly.

There are several ways through which consumers are better off by DoorDash's services. First of all, it allows people to receive meals at home, saving the most important resource we have: time. At the same time, consumers do not need to settle for a generic meal, since the

availability of restaurants is wide and probably the consumers' preferred one operates with the platform.

Moreover, consumers are able to use an easy and user-friendly interface that makes the ordering process relaxing, enhancing the customer experience.

Besides the delivery, there are several services that are offered to consumers, increasing the popularity of DoorDash. First, clients can filter by cuisine, time, pricing, rating, and other factors. The proprietary technology used by DoorDash increases the customer experience by providing personalization depending on customers' habits. Once the merchant has been identified, the order can be personalized and once the order has been placed, it is tracked so that in real-time the customer is aware of how much time is needed before the runners deliver the dish. In case of issues, clients can always be assisted by the firm's support service.

3.2.4.3 DoorDash: A win-win solution (Dashers)

Finally, it is important to understand in which way Dashers are better off by DoorDash. The system is created giving the possibility to riders to work where, when, and how they prefer. Flexibility is one of the main advantages given to runners, and the sign-up process is easy and fast.

Dashers have a dedicated mobile app, whose aim is to guarantee transparency to them, providing information such as guaranteed earnings, estimated time, and distance. Moreover, a service is offered to track their earnings as well as to monitor financial goals they set.

In addition, efficiency is increased through DoorDash's proprietary technology, which helps balance the supply of riders with consumer demand as well as reduces the waste of time. Finally, an interesting feature is the Dasher Community Council which provides feedback directly to executives.

3.2.5 DoorDash: Financial Performance

In this paragraph, the focus will be on the analysis of the firm's financial performance, through profitability and solvency analysis.

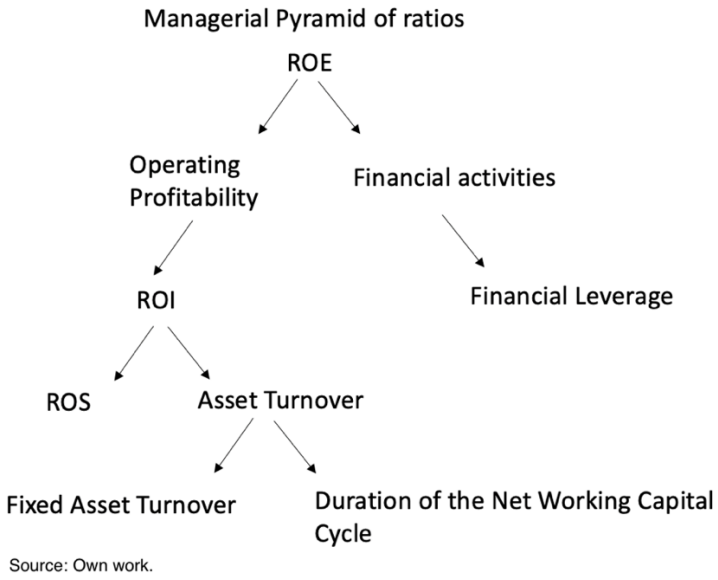
The profitability analysis focuses on firm's ability to generate profits, whereas the solvency analysis studies the ability of the company to pay its obligations, therefore it focuses on its financial equilibrium. Before analyzing the ratios, it is important to have a quick look at

DoorDash's financial statements. Exhibit 1 shows the consolidated balance sheet, whereas Exhibit 2 the consolidated income statement.[191]
In order to compute some ratios, it is required to reformulate the balance sheet, the Exhibit 3 provides a reformulated balance sheet.

3.2.5.1 DoorDash: Financial Performance (Profitability Analysis)

The profitability analysis is important to understand if the company is creating or destroying value. Two different perspectives can be adopted while conducting it: managerial and analyst's. In this paragraph, both the perspectives will be adopted, starting from the managerial one.
The following picture[192] shows the managerial perspective.

Picture 3.3



Source: Own work.

ROE stands for Return On Equity and it measures the overall profitability of the firm. It is given by Net Income (loss) over Equity, which is equity net of the Net Income of the year.
In formula:

$$ROE = \frac{Net\ Income}{Equity}$$

[191] Exhibits can be found at the end of this section.
[192] Source: *Financial Statement Analysis* course at LUISS, held by Professor Barbara Sveva Magnanelli.

In 2019, DoorDash has an ROE of 1.67, which is high considering that the average ROE in the retail industry in 2020 has been equal to 22.41%[193]. However, if we go in depth, we understand that the high performance of the company is due to high losses and negative equity. Negative shareholder equity, which is a red flag for investors, is due to losses that the company has accumulated over the years. It is important to stress out that a positive ROE generated by negative net income and equity is the worst combination for the company and its shareholders.[194]

After the ROE there is the first breakdown, which is the distinction between operating profitability and financial activities.

The operating profitability indicates the profitability generated by the business and it is measured by the ROI (Return On Investments), in formula:

$$ROI = \frac{EBIT}{NOA}$$

EBIT (Earnings Before Interests and Taxes) measures the profit (losses) generated by a company's operations, whereas NOA[195] (Net Operating Asset) reflects the capital invested in operating activities. In 2019, DoorDash's ROI has been equal to -1.27 due to negative EBIT. A negative ROI is not good since it means the company is destroying value, however, it is common to see negative ROI in the initial period of an investment.[196] Indeed, although DoorDash is the market leader in the US, it is common to see negative ROI in the online food delivery industry.[197]

ROI is given by the product of Return On Sales (ROS) and Asset Turnover. In formula:

$$ROI = ROS * Asset\ Turnover$$

Where $ROS = \frac{EBIT}{Sales}$, $Asset\ Turnover = \frac{Sales}{NOA}$.

ROS measures the efficiency of the company operating activities, whereas Asset Turnover its effectiveness.

In 2019, DoorDash ROS has been -0.75, whereas Asset Turnover 1.69. ROS reflects the percentage of revenues that become EBIT, for example, a ROS of 4% means that 4% of sales become EBIT, in this case, the negative ROS indicates that the company operating costs are higher than its revenues.

[193] Source: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/roe.html.
[194] Source: https://www.nasdaq.com/articles/how-calculate-roe-negative-stockholder-equity-2016-03-19.
[195] It is given by Operating Assets – Operating Liabilities.
[196] Source: https://bizfluent.com/info-12005678-negative-roi-mean.html.
[197] For example, as of 29th December 2020, Just Eat ROI (TTM) was -2.44 (data from Thomson Reuters, https://www.reuters.com/companies/TKWY.AS).

Talking about Asset Turnover, the firm performance in 2019 has been equal to 1.69 which means that firm's revenues were twice as the capital invested in operating activities, meaning that the company is effective.

The last breakdown for the operating profitability, from the managerial perspective, focuses on the Fixed Asset Turnover and the Duration of the Net Working Capital cycle.

The Fixed Asset Turnover focuses on fixed operating assets, measuring how much the fixed operating assets are able to generate operating turnover, in formula:

$$Fixed\ Asset\ Turnover = \frac{Sales}{Fixed\ Operating\ Assets}$$

DoorDash's Fixed Asset Turnover in 2019 was 1.26, which is a good performance since it should be higher than 1.

Different from the Fixed Asset Turnover, the Duration of the Net Working Capital Cycle, analyzes short-term operating assets. If it is positive, it tells us how many days on average the company needs to wait after the payment of suppliers to collect money. If negative, it measures how many days the company collects money from sales before the payment of suppliers. In 2019, DoorDash's Net Working Capital Cycle was 13, meaning that on average DoorDash pays its suppliers 13 days before it collects money. In formula:

$$Duration\ NWC\ cycle = Average\ Inventorie + Average\ Receivables - Average\ Payables$$

where:

$$Average\ Inventories = \frac{Average\ inventories\ during\ the\ year}{Cost\ of\ purchases} * 365$$

$$Average\ account\ receivables = \frac{Average\ account\ receivables\ during\ the\ year}{Sales} * 365$$

$$Average\ account\ payables = \frac{Average\ account\ payables\ during\ the\ year}{Cost\ of\ purchases} * 365$$

Now, it is important to understand which is the financial leverage of the firm, this can be estimated through the ratio Debt over Equity (D/E). In 2019, DoorDash D/E was -2.26, where the negative sign is due to the negative equity of the company. Regardless of the sign, the firm is heavily leveraged, and this is confirmed by the fact that in 2020 the company issues convertible notes at a 10% interest rate, suggesting high risk perceived by investors.

Before looking at the solvency analysis, it is worthy to perform the profitability one using the analyst's perspective. The ratios used are very similar, and there are only small differences. Instead of ROE, there is the Return on Common Equity (ROCE), which take into consideration Other Comprehensive Income (OCI). The OCI focuses on those elements that create or destroy value during the year, but this value is not realized. When the value of OCI is 0, as it is in this

case, the ROCE is equal to ROE, therefore in 2019, DoorDash's ROCE has been equal to its ROE.

The operating profitability is measured through RNOA, instead of ROI. However, RNOA formula is similar to ROI one:

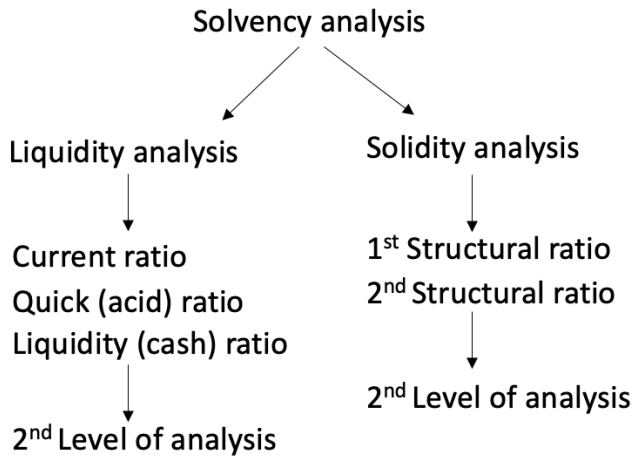
$$RNOA = \frac{NOPAT}{NOA}$$

In 2019, the company RNOA has been equal to -1.27, this because NOPAT was negative (-667 million).[198]

3.2.5.2 DoorDash: Financial Performance (Solvency Analysis)

The solvency analysis focuses on the firm financial situation: if it is able to pay its obligations. Obligations can be short-term or long-term, and this is the reason why the solvency analysis is divided into liquidity analysis which examines the former and solidity the latter. The following picture[199] shows the breakdown of the solvency analysis and its ratios.

Picture 3.4



Source: Own work.

Starting with the liquidity analysis, the first ratio that should be computed is the current ratio, in formula:

[198] Computed using the top-down approach, with a tax rate equal to 21% as suggested by the company in its IPO Prospectus.
[199] Source: own work on *Financial Statement Analysis* course at LUISS, held by Professor Barbara Sveva Magnanelli.

$$Current\ ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

Current assets generate cash within a year, whereas current liabilities should be paid within 12 months, for this reason, the ratio should be higher than 1. In the case of DoorDash, its current ratio for the year 2019 has been equal to 2.61.

However, since in current assets there are also inventories, which could require more than a year to be converted in cash, often also the quick ratio is computed:

$$Quick\ (acid)\ ratio = \frac{Current\ Assets - inventories}{Current\ Liabilities}$$

It is important that this ratio is greater than 1. In the case of DoorDash, it is equal to the current one since the company does not have inventories.

The last ratio to be performed in order to complete the first level of the liquidity analysis is the cash ratio, in formula:

$$Cash\ ratio = \frac{Cash}{Current\ Liabilities}$$

This ratio should be between 0.2 and 0.7. For example, a cash ratio of 0.2 means that 20% of companies' current liabilities could be paid immediately with the cash the firm has immediately available in its bank account. It is vital that the cash ratio is not below 0.2 because the corporation could face difficulties in paying current liabilities, but at the same time, it is important that the cash ratio is not larger than 1, because it would have meant that the company has enough cash to pay back current liabilities which are expensive due to interests, but it did not. DoorDash cash ratio in 2019 was 0.67, therefore a good amount.

The second level of the liquidity analysis consists of the duration of the net working capital cycle, which has been computed in the previous paragraph while performing the profitability analysis.

After analyzing the short-term liabilities of the company, it is important to run the solidity analysis to understand if the firm is able to pay its long-term obligations.

The first ratio is the 1st structural ratio, which tells how much of the fixed assets are financed by equity, in formula:

$$1st\ Structural\ ratio = \frac{Equity}{Non\ Current\ Assets}$$

The higher is this ratio, the higher is the solidity of the company. In 2019, DoorDash's first structural ratio was -1.47, where the negative sign is due to firm's negative equity.

The second structural ratio, which should always be greater than 1, tells us how much of the non-current assets are financed through long term liabilities, both debt and equity; in formula:

$$2nd\ Structural\ ratio = \frac{Equity + Long\ term\ debts}{Non\ Current\ Assets}$$

In 2019, DoorDash's 2nd structural ratio has been equal to 1.84, much higher than the theoretical threshold.

The second level of analysis for the solidity analysis focuses on the two sources of financing. The first ratio that can be used is total debt over total equity, in 2019 DoorDash performance on this ratio was 0.47[200].

Another ratio that should be computed is financial debt over equity, which has been computed already in the profitability analysis, and whose value for 2019 was -2.26.

The last ratio of the solidity analysis is fixed assets over current assets, which focuses on the composition of the assets, and the higher it is the higher is the rigidity of the capital. In 2019, the DoorDash ratio was 0.74, suggesting that fixed assets value was 74% of the current ones.

[200] To compute this ratio convertible preferred stock has been considered as equity, differently from other ratios where it has not specified.

Exhibit 1

DoorDash, Inc.

Consolidated Balance Sheets

(in millions, except share amounts which are reflected in thousands, and per share data)

	December 31, 2018	December 31, 2019	September 30, 2020	Pro Forma September 30, 2020
			(unaudited)	
Assets				
Current assets:				
Cash and cash equivalents	$ 215	$ 257	$ 1,096	
Marketable securities	255	508	515	
Funds held at payment processors	41	50	80	
Accounts receivable, net	19	58	182	
Prepaid expenses and other current assets	39	125	117	
Total current assets	569	998	1,990	
Restricted cash	—	30	91	
Marketable securities	86	—	—	
Operating lease right-of-use assets	—	166	204	
Property and equipment, net	21	101	182	
Intangible assets, net	—	103	59	
Goodwill	—	306	306	
Other assets	7	28	42	
Total assets	$ 683	$ 1,732	$ 2,874	
Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' (Deficit) Equity				
Current liabilities:				
Accounts payable	$ 35	$ 20	$ 31	
Operating lease liabilities	—	17	11	
Accrued expenses and other current liabilities	75	345	792	
Total current liabilities	110	382	834	
Operating lease liabilities	—	167	240	
Convertible notes	—	—	355	
Other liabilities	24	1	12	
Total liabilities	134	550	1,441	
Commitments and contingencies (Note 10)				
Redeemable convertible preferred stock, $0.00001 par value, 191,613, 235,860, and 240,018 shares authorized as of December 31, 2018, December 31, 2019, and September 30, 2020 (unaudited), respectively; 191,316, 230,667, and 238,989 shares issued and outstanding as of December 31, 2018, December 31, 2019, and September 30, 2020 (unaudited), respectively; liquidation preference of $985, $2,197, and $2,579 as of December 31, 2018, December 31, 2019, and September 30, 2020 (unaudited), respectively; no shares authorized, issued and outstanding as of September 30, 2020, pro forma (unaudited)	985	2,264	2,646	$ —
Stockholders' (deficit) equity:				
Common stock, $0.00001 par value, 292,500, 360,000 and 375,000 shares authorized as of December 31, 2018, December 31, 2019, and September 30, 2020 (unaudited), respectively; 41,802, 43,937, and 45,382 shares issued and outstanding as of December 31, 2018, December 31, 2019, and September 30, 2020 (unaudited), respectively; 375,000 shares authorized, 284,656 shares issued and outstanding as of September 30, 2020, pro forma (unaudited)	—	—	—	
Additional paid-in capital	50	70	87	2,976
Accumulated other comprehensive income (loss)	(1)	—	1	1
Accumulated deficit	(485)	(1,152)	(1,301)	(1,544)
Total stockholders' (deficit) equity	(436)	(1,082)	(1,213)	$ 1,433
Total liabilities, redeemable convertible preferred stock, and stockholders' (deficit) equity	$ 683	$ 1,732	$ 2,874	

The accompanying notes are an integral part of these consolidated financial statements.

Source: DoorDash IPO Prospectus.

Exhibit 2

DoorDash, Inc.

Consolidated Statements of Operations

(in millions, except share amounts which are reflected in thousands, and per share data)

	Year Ended December 31,		Nine Months Ended September 30,	
	2018	2019	2019	2020
			(unaudited)	
Revenue	$ 291	$ 885	$ 587	$ 1,916
Costs and expenses:				
Cost of revenue, exclusive of depreciation and amortization shown separately below	228	523	353	899
Sales and marketing	135	594	445	610
Research and development	51	107	73	112
General and administrative	78	245	179	337
Depreciation and amortization	9	32	16	89
Total costs and expenses	501	1,501	1,066	2,047
Loss from operations	(210)	(616)	(479)	(131)
Interest income	7	18	14	6
Interest expense	(1)	—	—	(22)
Other expense, net	—	(68)	(67)	—
Loss before income taxes	(204)	(666)	(532)	(147)
Provision for income taxes	—	1	1	2
Net loss	(204)	(667)	(533)	(149)
Premium paid on repurchase of redeemable convertible preferred stock	(3)	—	—	—
Deemed dividend to preferred stockholders	—	(1)	(1)	—
Net loss attributable to common stockholders	$ (207)	$ (668)	$ (534)	$ (149)
Net loss per share attributable to common stockholders, basic and diluted	$ (4.67)	$ (15.44)	$ (12.41)	$ (3.34)
Weighted-average number of shares outstanding used to compute net loss per share attributable to common stockholders, basic and diluted	44,305	43,252	43,045	44,568
Pro forma net loss per share, basic and diluted (unaudited)		$ (2.57)		$ (0.53)
Pro forma weighted-average number of shares outstanding used to compute pro forma net loss per share, basic and diluted (unaudited)		259,956		283,145

The accompanying notes are an integral part of these consolidated financial statements.

Source: DoorDash IPO Prospectus.

Exhibit 3

Strategic Balance Sheet

(in $ millions, except share amounts which are reflected in thousands, and per share data)

	December 31, 2018	December 31, 2019
Operating assets		
cash*	1	4
Account receivable, net	19	58
Prepaid expenses and other current assets	39	125
Operating lease right-of-use assetes	0	166
Property and equipment, net	21	101
Intangible assets, net	0	103
Goodwill	0	306
Other assets	7	28
total operating assets	87	891
Non operating assets		
Cash and cash equivalents	214	253
Short term marketable securities	255	508
Funds held at payment processors	41	50
Restricted cash	0	30
Long term marketable securities	86	0
Total non operating assets	596	841

	December 31, 2018	December 31, 2019
Stockholders' (deficit) equity		
Additional paid-in capital	50	70
Accumulated other comprehensive income (loss)	-1	0
Accumulated deficit	-485	-1152
Total stockholders' (deficit) equity	-436	-1082
Financial debts		
Short term operating lease liabilities	0	17
Long term operating lease liabilities	0	167
Redeamable convertible preferred stock	985	2264
Total financial debts	985	2448
Operating debts		
Account payables	35	20
Accrued expenses and other current liabilities	75	345
Other liabilities	24	1
Total operating debt	134	366

* computed as 0.5% of revenues

Source: Own work.

3.2.6 DoorDash: Main risks

There are several risks affecting the business.

First, DoorDash and the online food delivery industry are young, with limited history, making it difficult to forecast what will happen in the future.

The company has a trend of net losses, that must be reverted, also considering the fact that it might not be able to sustain the growth it had in previous years. Indeed, revenues growth has been from 2018 to 2019 equal to 204% and from 2019 to September 2020 equal to 226%.

Until now, Dashers are not considered employees, and the relation with the firm is on a contractual basis, therefore changes in regulation that will force online food delivery platforms to recognize riders as employees will adversely affect firm's cost structure.

As we have seen in the second chapter, the US market is highly competitive. Up to now, the company has been able to increase its market share, becoming the leader in the market. It is important that it protects and consolidate the position it has in the market. And to do so, it is essential the retention and acquisition of restaurants and customers.

The platform is based on network externalities, where the number of merchants, Dashers, and consumers is important. If the company is not able to maintain an appropriate level for all the three categories mentioned, down pressure on revenues and profitability will be inevitable.

The business is exposed to seasonality. For example, customers activity is impacted by weather, and orders are generally higher on cold days. At the same time, Dasher's activity is impacted by weather as well, but oppositely to consumers' one. Thus, an appealing salary scheme is crucial to ensure enough number of Dashers. Business activity is also impacted by the academic years, and when campuses are open there is increased demand for online food delivery.

Another relevant risk is the technological one since DoorDash's system is based on algorithms and ICT. Bugs, errors, and breakdowns can damage the customer experience as well as platform reputation. At the same time, a lot of data flow in the platform and it is important to have a security system that protects from cyberattacks to avoid litigations, fines, scandals that could jeopardize the company's reputation. To enhance the security system is fundamental since the company has already experienced a cyberattack. From the technological point of view, another issue may arise if the company is not able to successfully adopt drone or autonomous delivery before competitors.

As seen in the second chapter, one of the main drivers of the online food delivery industry is the increase of consumers' spending capacity, and this is valid also for DoorDash. Therefore,

if the economic condition, especially the one where DoorDash operates, will weaken, there is the risk that company revenues can move accordingly.

Another risk that may arise is connected to the growth strategy the company would like to implement in the next future. Indeed, to enter new markets and M&A activities are double-edge swords since they can boost but also jeopardize firm's profitability. At the same time, the ability of the company to properly scale its platform is vital for its future.

Even though the IPO allows DoorDash to raise financial resources, it is important to always keep in mind the cons of the life of a listed company, and in particular, it is likely to see higher costs that will require particular attention from the management, especially considering that the firm is generating losses.

Focusing on laws, it is important to highlight that regulation of the internet, mobile devices, and e-commerce is changing, and this can have a negative effect on the company's performance, by increasing the cost. At the same, regulation on privacy can change as well, making it more difficult for the platform to exploit data that are useful to improve customers' and merchants' experience which are essential for their retention and consequently for the company's performance. Moreover, it is likely that the corporation will be fined due to unauthorized text messages it sent in violation of the Telephone Consumer Protection Act.

The firm is also exposed to a worsening of its relations with third parties. For example, the platform uses a third-party payment processor for payments done by customers. Moreover, the platform is available on mobile devices, therefore its availability is depending also on mobile operating systems and application stores. At the same time, since the platform is also available as a web page, it is important that the firm can maintain a good rank in the web list in order to avoid losing customers. A change in the rank due to a company's failures or change in the search engine algorithms can negatively impact the firm's profitability.

DoorDash has been able to become the market leader thanks to its features, platform, and the technology it has been able to develop, it is therefore important that the firm protects successfully intellectual property in order to maintain its competitive position.

Finally, from the financial point of view, it is important that the company is able to generate profit in the next future, inverting its trend. Moreover, the company may face the risk of not being able to find financial resources to redeem its convertible notes or to finance its growth.

3.2.7 DoorDash: COVID-19 response

In March 2020, COVID-19 was spreading all over the world, forcing the WHO to declare a pandemic and countries to introduce restrictions to reduce infections. Consumers' behaviors, as well as businesses, were severely affected by governments' decisions and many restaurants were allowed to run their activities only on takeaway or delivery.

Even though COVID-19 has boosted online food delivery, it still represents a risk, since we do not know how long the pandemic will be. Indeed, there are several risks that can affect the industry: regulatory authorities can decide to block restaurant or delivery activity to better face the virus, geographic areas can be closed to reduce infections, and financial and capital markets can be negatively impacted making it more difficult to find financial resources. In addition, with the spread of COVID-19, jurisdictions across the US have implemented temporary commissions caps on food delivery platforms, reducing the revenues generated for each order. Those decisions could be very harmful if maintained even after the end of the health emergency.

DoorDash introduces a lot of precautions to reduce the probability of infection while continuing operating. It introduces no-contact delivery, and it distributes masks, hand sanitizers, and gloves to riders who work in critical areas.

The outbreak of the virus forced the company to close temporary its office, employees continued to work at home, damaging profitability and business operations.

Governments' restrictions on social and economic activities, created to face the virus, have negatively impacted DoorDash for Work business that is based on catering and events.

Prior to the pandemic, the online food delivery industry helped merchants to increase their revenues and address new consumers, with the spread of the virus online platforms become a lifeline for merchants whose only alternative would have been to temporarily close.

DoorDash tries to support the three pillars that are at the basis of its activity: merchants, Dashers, and the community.

Talking about restaurants, DoorDash tries to assist them by reducing commissions charged. At the same time, it provided sales and marketing solutions for merchants in order to boost their revenues.

Regarding Dashers, the firm has freely distributed equipment to reduce the likelihood of infection and introduced the no-contact delivery to maintain social distancing. Moreover, two weeks of financial assistance has been provided to riders that contracted the virus as well as telemedicine for only $4.

Finally, a lot of initiatives have been introduced to assist the community. From March to September 2020, DoorDash provides more than 270,000 deliveries to vulnerable individuals. Furthermore, it is worthy to mention that $200 million were allocated as part of the Main Street Strong program to support merchants, riders, and local communities. Although COVID-19 represented a challenge for DoorDash, the firm has been able to introduce measures to face and even exploit the situation. The company registered a 226% growth in revenues in 2020, bringing to a higher valuation.[201]

3.2.8 DoorDash: Market outlook and trends

DoorDash is the leader in the US online food delivery and the market has still a lot of opportunities. According to research, in 2019 Americans spent $600.5 billion on restaurants, representing 25% of the total amount spent on food and beverages.

As seen in the second chapter, people's behavior is changing, and the number of meals prepared at home is decreasing, boosting restaurants' revenues. This trend is affecting mainly younger generations, which are the ones that spend the most in the US online food delivery market. Internet solutions and ICT are modifying consumer behaviors and industries. Several industries are experiencing a shift from offline to online spending, and the same trend is expected for food delivery as well. According to DoorDash research, the online food delivery industry is still in its early stage, and it is expected to grow in the future, but probably at a lower rate than in the past.

In just 4 years, DoorDash has been able to become the market leader in the US. It is worthy to note that the firm started the business with a focus on suburban markets and smaller metropolitan areas, and it seems that in those areas the platform has been able to experience higher growth since they have been historically underserved. Moreover, suburban areas are characterized by families which on average order more for each order, and at the same time there is less traffic, allowing riders to work efficiently.

Talking about the future of DoorDash, there are two main strategies the company would like to follow: expansion and diversification.

Although the company operates mainly in the US, it has a growing business in Canada, and it has recently launched the platform in Australia.

Talking about diversification, up to now most merchants are restaurants, but it is likely to see an expansion in other kinds of products delivered such as medicines and flowers.

[201] Source: https://marketrealist.com/p/when-is-doordash-ipo-date/.

To summarize, DoorDash is the leader in the online food delivery industry in US which is expected to grow in the next future. The company has been able to face the challenges and exploit the economic opportunities created by the outbreak of COVID-19, showing resilience and programming ability.

3.3 DoorDash IPO[202]

Despite 2020 has been a turbulent year for almost every sector, the online food delivery industry has been able to exploit the new challenges the world was experiencing. DoorDash was not only able to achieve a three digits growth in its revenues, but it also succeeded in getting listed. Indeed, on 9th December 2020, its shares started to be traded in the New York Stock Exchange, under the ticket "DASH".[203]
This section will focus on the IPO of DoorDash, trying to touch on the most important aspects such as the offering, the price, and the use of the proceeds.

3.3.1 DoorDash IPO: The offering

Before the IPO, the stock capital of the company was divided into three different classes of shares: Class A common stock, Class B common stock, and Class C common stock. These three classes of shares give to the holder the same rights except for voting and conversion. Each share of Class A gives the holder one voting right.
One share of Class B gives 20 voting rights, and it is convertible into one share of Class A at any time. Class C shares have no voting rights, they can be converted in Class A shares following a 1:1 ratio, but the conversion can be done following the conversion or exchange of all the Class B shares into Class A, and in any case, there will be no Class C shares after the completion of the offering.
In the IPO only Class A shares were offered for a total amount of 33,000,000 shares, which will result in a total of 286,343,071 Class A shares outstanding after the IPO. The total number of Class B shares outstanding following the IPO will be 31,313,450 shares (hold entirely by the firm co-founders), whereas no Class C shares will be available. It is important to notice that since all Class B shares are owned by co-founders, after the IPO they have a voting power of 69%, which could become 79% due to the equity incentive scheme.

[202] Main source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).
[203] Source: https://marketrealist.com/p/when-is-doordash-ipo-date/.

The initial public offering price has been set equal to $102.00, above the last price range that was $90-$95[204], with a total deal size of $3.37 billion and a market cap at IPO price equal to $32.40 billion[205]. After the expenses, the total proceeds that went to DoorDash were $3.29 billion.

3.3.2 DoorDash IPO: Key players and IPO Discount

As said in the first chapter, any IPO is characterized by the presence of several players and advisors. In the case of this IPO, the company appointed 12 underwrites, with Goldman Sachs and J.P. Morgan being the biggest in terms of shares received, representing in conjunction 64% of the total share offered.

The following table[206] summarizes the list of the underwriters with the number of shares they receive.

Table 3.3

Underwriters	Number of Shares
Goldman Sachs & Co. LLC	11,220,000
J.P. Morgan Securities LLC	9,982,500
Barclays Capital Inc.	2,475,000
Deutsche Bank Securities Inc.	2,310,000
RBC Capital Markets LLC	2,310,000
UBS Securities LLC	2,310,000
Mizuho Securities USA LLC	990,000
JMP Securities LLC	280,500
Needham & Company, LLC	280,500
Oppenheimer & Co. Inc.	280,500
Piper Sandler & Co.	280,500
William Blair & Company, L.L.C.	280,500
Total	33,000,000

Source: DoorDash IPO Prospectus.

The underwriting discount has been $2.488 per share, meaning a total cost for the company equal to $80,784,000, which represents 2.4% of the total deal size.

Regarding the underwriting agreement between the company and the underwriters, it is important to specify that no stabilization mechanism has been decided, and this can cause a more volatile aftermarket. Underwriters can buy and sell shares in the open market, but stabilization is not required, since the company has not granted an option to underwriters to buy shares directly from it.

[204] Source: https://www.forbes.com/sites/greatspeculations/2020/12/08/doordashs-new-valuation-is-even-more-ridiculous/?sh=296c95743b34.
[205] Computed as IPO price times total shares outstanding (class A,B and C), as reported by the prospectus.
[206] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

DoorDash has agreed to reimburse underwriters for some costs related to FINRA, in an amount not exceeding $35,000, and the total expenses of the offering, excluding underwriting discount have been estimated at $18 million.

3.3.3 DoorDash IPO: Use of proceeds

When there is an IPO, it is important to understand which are the reasons why the company is doing it, and how proceeds will be used.

As stated by the company in its IPO prospectus, the main purposes the company wanted to achieve through its IPO were to increase the company's share capital, enhance financial flexibility, and increase share liquidity.

Proceeds from the IPO will be used mainly to achieve general corporate purposes connected to net working capital, operating expenses, and capital expenditures.

A portion of the proceeds can be used to cover part of the anticipated tax withholding and obligations linked to Restricted Stock Units (RSUs).

Even though the company in the moment of the IPO does not have any material agreements for acquisitions or investments, part of the proceeds can be used in the future for such activities.

To summarize the company does not know with certainty how IPO proceeds will be used, and as stated by DoorDash in its IPO prospectus, it has discretion in using the financial resources it has been able to raise.

3.3.4 DoorDash IPO: Dilution

As said in the first chapter, one of the main disadvantages of the IPO is dilution. This paragraph will focus on the dilution effect caused in the IPO of DoorDash.

According to what estimated by the company, new shareholders will suffer an economic dilution equal to $88.47. The dilution is given by the difference between the IPO price ($102.00) and the pro forma as adjusted net tangible book value per share immediately after the end of the offer. The net tangible book value per share has been determined by dividing the total tangible assets of the firm by the number of shares outstanding.

The following table[207] explains in detail how the dilution of $88.47 has been obtained.

[207] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

Table 3.4

Initial public offering price per share		$102.00
Historical net tangible book value per share as of September 30, 2020	$ 22.50	
Decrease per share attributable to the pro forma adjustments described above	(18.91)	
Pro forma net tangible book value per share as of September 30, 2020	3.59	
Increase in pro forma net tangible book value per share attributable to new investors purchasing shares of Class A common stock in this offering	9.94	
Pro forma as adjusted net tangible book value per share immediately after this offering		13.53
Dilution in pro forma net tangible book value per share to new investors in this offering		$ 88.47

Source: DoorDash IPO Prospectus.

It is now interesting to make the comparison between new and existing shareholders, after considering the disposal of the shares issued through the IPO at $102.00. The following table[208] allows us to make a comparison between new and existing shareholders.

Table 3.5

	Shares Purchased		Total Consideration		Average Price per Share
	Number	Percent	Amount	Percent	
Existing stockholders	284,656,521	89.6%	$2,485,024,594	42.5%	$ 8.73
New investors	33,000,000	10.4	3,366,000,000	57.5	$102.00
Total	317,656,521	100%	$5,851,024,594	100%	

Source: DoorDash IPO Prospectus.

The above picture allows us to easily understand the economic dilution suffered by new shareholders. As we can notice the number of new shares represents 10.4% of the total shares, however, the economic contribution does not respect this proportion, since it is equal to 57.5%.

3.3.5 DoorDash IPO: Lock-ups and restrictions

The underwriting agreement does not include any stabilization mechanisms; however, several lock-ups restrictions have been included in order to prevent the disposal of shares immediately after the IPO.

The total number of shares issued in the offering was 33,000,000, all of them are allowed to freely trade with the exemption of those shares acquired by the firm affiliates, as defined by Rule 144 under the Securities Act. On the contrary, the remaining shares will be considered as "restricted securities" as defined by the same rule and can be sold in the market only if they are registered under the Security Act and if they qualify for an exemption.

[208] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

The company has agreed that it will not offer, pledge and sell any option or derivative connected to the Class A common stock without the written consent of Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC during the period after the date of the prospectus (8th December 2020) and continuing to and including the earlier of the date (A) 180 days after the date of the prospectus or (B) immediately prior to the opening of trading on the third full trading day after DoorDash has publicly furnished the second earnings release on Form 8-K or filed the second periodic report.

The Company's directors, executive officers, and large shareholders have entered into a lock-up agreement with underwriters, according to which each individual or entity for a period of time up to 180 days after the date of the prospectus (8th December 2020), may not, without the prior written consent of Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC, dispose directly or indirectly, through derivatives, Class A shares.

The lock-up periods have two potential release dates, the first following the first periodic report by the company if some conditions are met (early lock-up expiration), and the second following the second periodic report, or 180 days, whichever is earlier.

According to the early lock-up expiration, the restriction will expire on 40% of each shareholders' shares subject to the agreement (20% if the shareholder is not a manager or a director) if: (1) the early lock-up expiration date is at least 90 days after the date of the prospectus (8th December 2020), (2) if such date occurs after the release of one periodic report, (3) on such date, and for the half of any 10 consecutive trading days ending on such date, the last reported closing price of the firm shares is at least 25% greater than the IPO price, and (4) such date occurs in an open trading window and there are at least 5 trading days remaining in the open trading window.

Regarding the second release date, all the shares subject to the lock-up agreement and not released in the first release date will be released upon the earlier of (1) immediately prior to the opening of trading on the third full trading day after the company has published the second periodic report or (2) 180 days after the date of the IPO prospectus (8th December 2020).

The following table[209] summarizes the lock-up agreements scheme.

[209] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

Table 3.6

Type of Release	Conditions	Expiration Date	Percent Released
Early Lock-Up Expiration	All must be satisfied: • 90 days from initial public offering pricing • After first earnings release or periodic report • On such date, and for 5 out of any 10 consecutive trading days ending on such date, trading price at least 25% higher than initial public offering price • Date occurs in an open trading window with at least 5 trading days remaining	Prior to trading on third full trading day following date on which all conditions are satisfied	• 20% for directors (excluding affiliated funds) and management team • 40% for all other equity holders
Final Lock-Up Expiration	Earlier of: • Second earnings release or periodic report; or • 180 days	Earlier of: • Prior to trading on third full trading day after second earnings release or periodic report; or • 180 days	All remaining shares

Source: DoorDash IPO Prospectus.

Moreover, the firm directors, managers, and larger shareholders have entered into market standoff agreements with the company under which they will not sell or hedge their Class A shares for the 180 days following the date of the prospectus (8th December 2020), without written consent by DoorDash. In the case their lock-up agreements with the underwriters are subject to early termination, the company will not enforce the market standoff agreement[210] from and after that date.

3.3.6 DoorDash IPO: Aftermarket and market sentiment

In this paragraph, the focus will be on the aftermarket, thus how DoorDash stock has performed immediately after its IPO. Since there is no standard ending time to be considered[211], the focus will be on the 22 days following its first trading day (9th December 2020), covering all the year 2020.

As ratios have shown in the previous paragraphs, the company profitability is not so appealing, especially as suggested by the ROE. Interesting, from this point of view, is an article by Forbes[212] that performing a reverse Discounted Cash Flows (DCF) tries to understand which should be company statistics in order to meet the valuation[213] it obtained at the IPO price.

[210] It is an agreement that prevents insiders of a company to sell their shares in the market for a specific period of time, following the IPO (https://www.investopedia.com/terms/m/market-standoff-agreement.asp).
[211] Source: https://www.investopedia.com/terms/a/aftermarketperformance.asp.
[212] Source: Forbes article "DoorDash's New Valuation is Even More Ridiculous" (https://www.forbes.com/sites/greatspeculations/2020/12/08/doordashs-new-valuation-is-even-more-ridiculous/?sh=296c95743b34).
[213] Set by the author of the article at $29 Billions, slightly less the actual valuation at the IPO price.

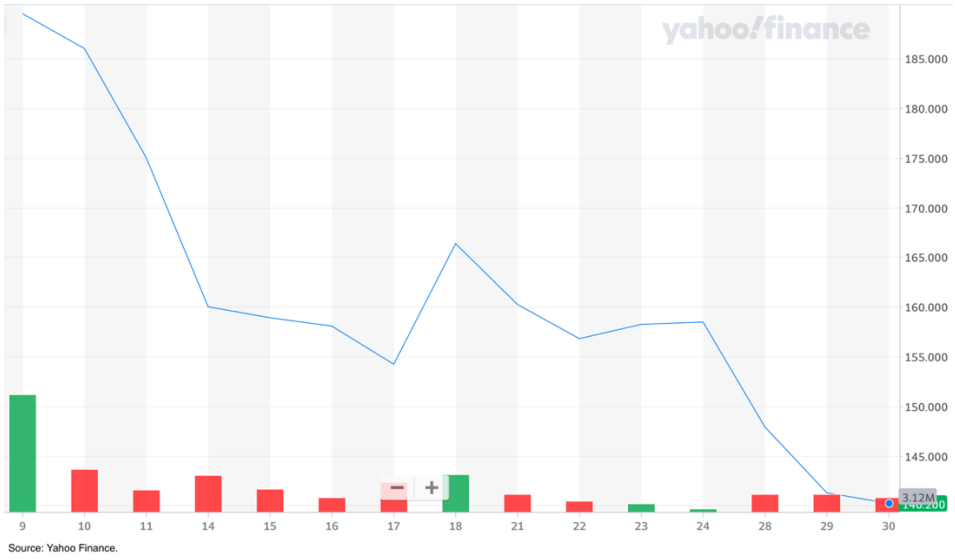
According to the article, to justify the valuation, DoorDash must: improve its NOPAT margin to 8% (in 2019 it was -67%), and revenues should grow by 37% compounded annually for the following 11 years. According to research by UBS[214], the global food delivery market will be $365 in 2030, and DoorDash to meet the valuation it received should capture more than 64% of the value estimated.

Despite the IPO price seems to be much higher than the intrinsic value of the company, it is worthy to mention the price reached by the share on the first trading day (9th December 2020), which was at closing $189.51, 86% above the IPO initial price ($102), reaching a valuation of $60 billion.

However, the initial enthusiasm for the share has immediately diminished, as the following chart[215] strongly suggested.

Chart 3.1

DoorDash's share price



The share price declined has been caused by doubts from several economists and entities. Above all, it is worthy to mention the research[216] published on 17th December 2020 by the short-

[214] Source: UBS research "The Food Revolution. Trends disrupting the food industry." (https://www.ubs.com/global/en/wealth-management/chief-investment-office/investment-opportunities/sustainable-investing/2019/food-revolution.html).
[215] Source: Yahoo Finance as of 31st December 2020 (https://finance.yahoo.com/quote/DASH/).
[216] Source: Citron research "DoorDash. The Most Ridiculous IPO of 2020" (https://citronresearch.com/wp-content/uploads/2020/12/DoorDash-The-Most-Ridiculous-IPO.pdf).

seller Citron that set the target price to $40, 61% less the initial IPO price and 71% less the share price on 31st December 2020.[217]

Focusing on EV/SALES multiples, we can notice how DoorDash seems to be overvalued, trading at 19x the multiple against an average of its main competitor of 4x.

The following picture allows understanding how much is different the EV/SALES multiples among Uber, Grubhub, Postmated, and DoorDash.

Table 3.7

Company	EV/Sales Multiple
Uber	6x
Grubhub	4x
Postmates	4x
Average	**5x**
DoorDash	**19x**

Source: Citron research.

As reported by Bloomberg[218], after the Citron research DoorDash stock price fell by 5.1%. Chart 3.2[219] graphically summarizes the effect of Citron's comment on DoorDash price.

[217] The share price on 31 December 2020 was $140.
[218] Source: https://www.bloomberg.com/news/articles/2020-12-17/doordash-sinks-after-citron-calls-ipo-most-ridiculous-of-2020.
[219] Source: https://www.bloomberg.com/news/articles/2020-12-17/doordash-sinks-after-citron-calls-ipo-most-ridiculous-of-2020.

Chart 3.2

Finally, it is important to highlight that despite the share price decline, DoorDash share is still trading above the initial IPO price.

3.4 DoorDash Valuation

In this section, the focus will be on the valuation of DoorDash.
The idea is to simulate what investment banks and advisors have done to identify the IPO share price. Therefore, the underlying assumption is to be in 2020, having the financial statements of 2019 and 2018 and the pro-forma for 2020. Moreover, the company is not listed yet, since the valuation is needed to identify the IPO share price.
This paragraph will be divided into two different subparagraphs, where intrinsic and relative valuation models will be performed.

3.4.1 DoorDash Valuation: Intrinsic valuation

Intrinsic valuation techniques are characterized by the fact that the focus is on specific characteristics that the company or the asset under evaluation has. These methods estimate the value of the asset as the present value of the cash flows it can generate in the future.
In performing the intrinsic valuation two different perspectives can be adopted: equity or asset side. In the first perspective, the most common methods are Dividend Discount Model (DDM) and Flow To Equity model (FTE), whereas in the asset side the most used method is the discounted free cash flow (DCF).

Since the company does not pay dividends and given the uncertainty regarding the firm's debt, which makes it difficult to apply the DDM and FTE respectively, the method that will be used to capture DoorDash's intrinsic value is the DCF.

As the name suggested, in order to perform a discounted cash flow valuation is needed to estimate the discount rate and the free cash flow from operations (FCFO). The discount rate required is the Weighted Average Cost of Capital (WACC), in formula:

$$wacc = \frac{E}{D+E} r_e + \frac{D}{D+E} r_d * (1 - t),$$

Where E is the market value of Equity, D is the market value of Net Debt[220], r_e is the equity cost of capital, r_d is the debt cost of capital and t is the corporate marginal tax rate.

Before analyzing in detail all the components of the WACC, we must consider the elements that affect the equity cost of capital.

Even though there are several ways through which it can be computed, the approach used in this work is the Capital Asset Pricing Model (CAPM), since this model is the most used in the professional practice (about 73.5% of the firms interviewed by Professors John Graham and Campbell Harvey use this method[221]), even though it is affected by several limitations and problems.

According to CAPM, the equity cost of capital can be estimated using the following formula:

$$r_e = r_f + \beta_e * (E[R_m] - r_f),$$

Where r_f is the risk-free rate, β_e is the beta equity of the company and $E[R_m]$ is the expected return of the market portfolio.

3.4.1.1 DoorDash Valuation: Intrinsic valuation (Risk-free rate)

One of the main elements of the CAPM equation is the risk-free rate, denoted as r_f .

The basic assumption is that in the market is impossible to find an investment that is completely free of risk (it should be free of reinvestment risk and free of default risk)[222], therefore the 10-years government bonds yield will be used as a proxy for the risk-free rate.

Since DoorDash is a US company, the US 10 years treasury yields will be used as the risk-free rate. In order to identify it, auction data will be adopted because they are not affected by

[220] Net debt is equal to financial debt minus cash.

[221] Source: J.R. Graham and C.R. Harvey, 2001. The Theory and Practice of Corporate Finance: Evidence from the Field. Journal of Financial Economics 60: 187-243.

[222] Treasury bonds issued by countries with rating AAA can be considered almost free of default, but to eliminate reinvestment risk, the only solution should be to use the yield of zero-coupon bonds (ZCB), however generally they are issued with a maturity less than a year.

problems linked to the secondary market such as negotiations and volatility. The resulting yield for the US 10-years Treasury notes in 15/12/2020 was 0.951%.[223]

3.4.1.2 DoorDash Valuation: Intrinsic valuation (Beta equity)

Beta equity measures the systematic risk of the company.

For listed companies it is estimated using the top-down approach, whose main assumption is that the past will be reflected in the future and the beta is the slope of the beta regression line, where in the y-axis there are stock returns in x-axis the market ones.

Even though DoorDash is a listed company, the valuation performed here is pre-IPO, when the company was not listed yet, thus the described approach cannot be used.

Therefore, the alternative is to perform a bottom-up approach. First, comparable firms should be identified, their unlevered beta estimated and averaged out. Then the Hamada equation will be used to re-leverage the beta using the specific leverage ratio of the company under evaluation, in formula:

$$\beta_e = \beta_u * (1 + (1 - t) * \frac{D}{E})$$

Where β_u is the average beta unlevered[224] and t and D/E are specific of the company. As seen in the previous chapters, the main competitors of DoorDash are Postmates, Uber Eats, and Grubhub. Among them, only the last two are listed, however, Uber Eats is a division of Uber, and since it does not represent its main activity, Uber cannot be considered as a comparable of DoorDash. Other comparable listed companies, that operate in the online food delivery industry, are Just Eat and Delivery Hero.

The following table[225] shows the beta unlevered of DoorDash comparables and their average.

Table 3.8

2020	Be	D/E	tax rate	Beta asset
Grubhub	1.358	2.92%	27%	1.388
DeliveryHero	0.317	0.83%	30%	0.319
JustEat	0.830	0.30%	19%	0.832
average				0.846

Source: Own work (on Bloomberg data)

[223] Source: https://www.treasurydirect.gov/instit/annceresult/annceresult.htm.
[224] Beta unlevered measures the systematic risk of the assets, and it is typical of industry.
[225] Source: Own work (on Infront data).

The average beta unlevered that will be used in the Hamada formula to compute the beta equity is 0.846. The only two elements missing to estimate DoorDash is its marginal tax rate and its D/E market ratio.

Talking about the marginal corporate tax rate, in the IPO Prospectus, the firm stated that due to losses its marginal tax rate has been equal to 0, however, the corporation admits that the federal statutory tax rate that should be applied to the firm is 21%,[226] which will be assumed as DoorDash marginal tax rate.

The last building block for the beta equity estimation is the market debt to equity ratio.

The leverage that should be used is the firm target one. However, it has not been disclosed by the company neither it can be implicitly estimated looking at past company's D/E due to lack of information[227].

Since there is no disclosure by the company about its target financial leverage, and since an implicit one cannot be computed, the only alternative is to use as a proxy the average D/E of the industry. For these reasons it has been assumed that DoorDash's target D/E is equal to the average D/E of its competitors, which is 1.35%.

With the abovementioned assumptions, the beta equity of the company is 0.837. The fact that the beta of the corporation is below one, means that the stock returns tend to move in the same direction as the market (indeed the beta is positive), but the scale of this movement is less than proportional than the change in the market return (83.7%).

3.4.1.3 DoorDash Valuation: Intrinsic valuation (Market risk premium)

Another important element that is required to compute the equity cost of capital is the market risk premium (MRP). The MRP is the extra return over the risk-free rate that an investor expects to receive from an investment in a fully diversified portfolio of common stocks.

Based on the data provided by the webpage of Professor Damodaran, the US equity risk premium is 6.01%.[228]

[226] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

[227] Since DoorDash was a private company, it was not subject to all the disclosure requirements affecting public companies.

[228] Source: http://pages.stern.nyu.edu/~adamodar/.

3.4.1.4 DoorDash Valuation: Intrinsic valuation (Equity cost of capital)

Under the assumptions made and running the CAPM, the equity cost of capital for DoorDash is 5.982%.

3.4.1.5 DoorDash Valuation: Intrinsic valuation (Debt cost of capital)

There are several alternatives for the estimation of the debt cost of capital, r_d.

The first possibility consists of computing it as the ratio between the interest expenses of the company and its total debt outstanding. This method can be applied only if the company is mature and has stable financial leverage, however considering the characteristics of the firm, which is a double-digit growing company, this alternative should be discarded.

The second possibility is to estimate the debt cost of capital using the generic formula:

$$r_d = r_f + spread$$

This formula shows that financial institutions are going to apply to borrowers an interest rate that is obtained adding to the risk-free rate a spread that reflects the probability of default of the borrower. In order to estimate the credit spread, the interest coverage ratio (ICR) which is a proxy of the firm capability to pay its interest expenses should be estimated. The interest coverage ratio is computed as the ratio between the EBIT (Earnings Before Interests and Taxes) of the firm over its financial expenses, in formula:

$$ICR = \frac{EBIT}{financial\ expenses}$$

The problem with this approach is that there is not enough information about the financial expenses of the company, especially considering that the management declared in the IPO prospectus that financial expenses were ignorable.

However, in the prospectus, the firm stated that on 19th February 2020 the company issued convertible notes for a total amount of $333 million, with an annual interest rate of 10%.

Therefore, the debt cost of capital assumed for the valuation is 10%.

3.4.1.6 DoorDash Valuation: Intrinsic valuation (WACC)

Under the assumptions made and running the WACC formula, DoorDash's weighted average cost of capital is 6.01%.

3.4.1.7 DoorDash Valuation: Intrinsic valuation (DCF)

In order to compute the value of the company using the DCF, it is needed to estimate the future free cash flow from operation (FCFO) for the explicit forecast period and for the terminal value (the normalized FCFO).

The common practice is to consider the explicit time horizon between 5-10 years, since a larger time period can lead to not reliable forecasts, a time horizon of 5 years will be used.

In order to estimate the free cash flows from operations (FCFO), EBITDA, depreciation and amortization (D&A), capital expenditures (Capex), and net working capital have been linked to sales. The following table summarizes the ratio used to estimate DoorDash's FCFO.

Table 3.9

	2020	2021	2022	2023	2024	2025
g. Revenues	188.66%	69.59%	40.89%	26.55%	12.20%	12.20%
EBITDA/Revenues	-2.19%	5.00%	10.00%	15.00%	20.00%	25.00%
D&A/Revenues	4.65%	3.78%	3.78%	3.78%	3.78%	3.78%
Capex/Revenues	6.22%	5.86%	5.86%	5.86%	5.86%	
NWC/Revenues	7.88%	2.23%	2.23%	2.23%	2.23%	

Source: Own work.

Talking about revenues' growth rate, the 2020 figure has been computed pro-rata, given that at the moment of the IPO, only revenues until September 2020 were available. The level for 2021 has been computed as the average of the growth rate between 2020 DoorDash revenues' growth rate, Statista expectation for the revenues growth rate between 2020-2024 in the online food delivery in the US and worldwide.[229] Then, it has been assumed that the company will reach the level of 12.20% by 2024, which is the Statista expectation worldwide for the period 2020-2024. Discussing the last point, the worldwide level has been preferred to the US one, since the company strategy is to expand its business outside the US.

Talking about EBITDA/Revenues, it has been assumed that the company will gradually align its EBITDA margin to 15.82% which is the average between the Restaurant/dining industry (20.21%) and Online retail (10.83%) according to Damodaran database data.[230] However, to take into account the fact that the industry will be more mature in 5 years, and that efficiency will increase with the consolidation of best practices, the level for the EBITDA margin of 2025 has been assumed to be 25%.

[229] Statista Online Food Delivery Report 2020 (the period covered 2020-2024).
[230] Source: http://pages.stern.nyu.edu/~adamodar/.

Regarding D&A, the last 3 years average of D&A/Revenues has been computed and it has been assumed that the company will maintain constant this figure in the future. The same assumption has been used for Capex/Revenues[231] and NWC/Revenues.

The main assumption is that starting from 2025 the company will enter its steady state where it has exploited all its competitive advantages. Since we cannot assume that the company, in its steady-state, can grow more than the economy, the inflation rate can be used as a proxy for the growth of the economy and therefore as the perpetual growth rate of the firms' cash flows. DoorDash operates mainly in the US, where the Federal Reserve (FED) aims to keep inflation close to 2%[232] in the long run, therefore, a growth rate of 2% will be assumed for the estimation of the terminal value. Moreover, to estimate the normalized free cash flows, it has been assumed that the variation of the net working capital is equal to zero and that the level of Capex is equal to D&A, such that the normalized FCFO is equal to the NOPAT (net operating profit after taxes) of the same year.

Given the assumptions explained above, the following part of the paragraph explains how FCFOs have been computed.

Regarding revenues, the abovementioned growth rates have been applied.

EBITDA has been estimated by multiplying the EBITDA/Revenues by sales forecasted for the period. In formula:

$$EBITDA_t = \left(\frac{EBITDA}{Revenues}\right)_t * Revenues_t$$

EBIT has been computed subtracting depreciation and amortization (D&A) from EBITDA. In formula:

$$EBIT_t = EBITDA_t - D\&A_t$$

D&A has been estimated by multiplying the D&A/Revenues by sales forecasted for the period. In formula:

$$D\&A_t = \left(\frac{D\&A}{Revenues}\right)_t * Revenues_t$$

Taxes have been identified by multiplying the marginal corporate tax rate (21%) by EBIT,[233] in formula:

[231] Source for Capex: Refinitiv Eikon database.
[232] Source: https://www.federalreserve.gov/faqs/economy_14400.htm.
[233] In case EBIT was negative, taxes have been set equal to 0.

$$Taxes_t = tax\ rate * EBIT_t$$

NOPAT has been computed as the difference between EBIT and taxes, in formula:

$$NOPAT_t = EBIT_t - Taxes_t$$

In order to compute the variation in the net working capital for the explicit forecast period, the average NWC/sales has been multiplied by the sales of the year, finding the NWC of the period under examination. Then, the variation of the net working capital was computed as the difference between the estimation of the current year minus the one forecasted for the previous period. In formula:

$$NWC_t = average\ \frac{NWC}{Revenues} * Revenues_t$$

$$var.NWC_t = NWC_t - NWC_{t-1}$$

The change of the net working capital beyond the explicit forecast period is equal to 0, following the convention adopted in financial modeling.
Capex has been estimated using the following formula:

$$Capex_t = average\ \frac{Capex}{Revenues} * Revenues_t$$

The Capex used for the computation of the normalized FCFO is equal to the D&A of that period. This assumption is based on the fact that the company is in its steady state, therefore it is reasonable to assume that its production capacity will remain constant, and this happens when the firm invests money enough to completely recover (and nothing more) the D&A.
Finally, the following formula was run to get the FCFO:

$$FCFO_t = NOPAT_t + D\&A_t - Capex - \Delta\, NWC_t$$

The following table shows the financial model obtained using these assumptions.

Table 3.10

$m	2020	2021	2022	2023	2024	2025
EBITDA	- 56.00	216.62	610.41	1,158.68	1,733.38	2,431.07
D&A	118.67	163.96	231.01	292.34	328.01	368.02
EBIT	- 174.67	52.66	379.40	866.34	1,405.38	2,063.05
Tax	-	11.06	79.67	181.93	295.13	433.24
Nopat	- 174.67	41.60	299.72	684.41	1,110.25	1,629.81
D&A	118.67	163.96	231.01	292.34	328.01	368.02
Capex	159.00	253.93	357.77	452.74	507.98	368.02
∆ NWC	163.33 -	104.92	39.43	36.06	20.97	-
FCFO	**- 378.33**	**56.55**	**133.54**	**487.94**	**909.31**	**1,629.81**

Source: Own work.

Once obtained the forecasted FCFO, they have been discounted using the firm's WACC, obtaining an enterprise value (EV) of $31.25 billion. In formula:

$$EV_{2019} = \frac{FCFO_{2020}}{1+wacc} + \frac{FCFO_{2021}}{(1+wacc)^2} + \frac{FCFO_{2022}}{(1+wacc)^3} + \frac{FCFO_{2023}}{(1+wacc)^4} + \frac{FCFO_{2024}}{(1+wacc)^5} + \frac{\frac{FCFO_{2025}}{wacc - g_{2025}}}{(1+wacc)^5}$$

To the EV the net debt has been subtracted to identify the equity value of the firm equal to $31.83 billion. Finally, the share price has been identified running the following formula:

$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

The share price of the firm under these assumptions is equal to $100.20, which is 1.76% less than the IPO price that was set at $102.00.

3.4.1.8 DoorDash Valuation: Intrinsic valuation (Sensitivity analysis)

The focus of this section is to understand how the share price changes, modifying some of the assumptions made while running the DCF.

In the basic scenario, it has been assumed that the company target D/E is equal to the average one of its comparable. However, the online food delivery industry is not mature and best practices have not been developed yet, for this reason, it is now assumed that the target D/E of the company is equal to the one of the online retail industry, which is more established than

and similar to the online food delivery industry. According to data[234] disclosed by Professor Damodaran, the average market D/E in the US retail industry is 10.31%. The share price using this assumption will be $105.35, 5.14%, and 3.28% more than the basic scenario and the official IPO share price respectively.

One of the key determinants of intrinsic valuation is the terminal value. In the basic scenario, the perpetuity growth model has been applied and it has been assumed that the company will grow steadily at 2%. Another approach used in the investment banking sphere is the exit multiple methods.[235] It consists of calculating the terminal value as the last twelve months trading multiples for comparable firms times the estimated terminal year financial measure of the company under evaluation. Since the only reliable multiple available is Grubhub's one, its multiple has been applied and the estimated DoorDash share price is $216.61, sensibly higher the IPO share price established by investment banks.

Another key determinant of the DCF model is the WACC. Under the basic scenario assumption, the WACC of the company is equal to 6.01% and starting from this figure a sensitivity analysis has been run, understanding the behavior of the share price under a range of ± 0.3%. This range has been chosen because it has been assumed that the weighted average cost of capital of the firm can fluctuate within this range, and that it is very unlikely to see higher variations. The following table shows the result obtained.

Table 3.11

		100.20	%variation wrt basic scenario	%variation wrt IPO share price
WACC	5.71%	109.46	9.24%	7.31%
	5.81%	106.21	6.00%	4.13%
	5.91%	103.13	2.92%	1.10%
	6.01%	100.20	0.00%	-1.76%
	6.11%	97.42	-2.78%	-4.49%
	6.21%	94.77	-5.42%	-7.09%
	6.31%	92.25	-7.94%	-9.56%

Source: Own work.

As we can notice from the table the model is highly sensitive to changes in WACC, with a minimum value of $92.25 and a maximum of $109.46. Moreover, a share price of $102.00 (the IPO share price) is consistent with a WACC of 5.95%.

[234] Source: http://pages.stern.nyu.edu/~adamodar/.
[235] Source: Rosenbaum, Joshua., and Joshua. Pearl. Investment Banking Valuation, Leveraged Buyouts, and Merger & Acquisitions. 2nd ed. Hoboken: Wiley, 2013. Print.

3.4.2 DoorDash Valuation: Relative valuation

Relative valuation techniques try to estimate the value of a company or an asset by looking at the market price of its comparable. In order to adjust for size, multiples are adopted. A multiple is a ratio where in the numerator there is the enterprise or equity value of the firm and in the denominator one of its financial characteristics. Since the equity value refers only to shareholders, while the enterprise one to shareholders and debtholders, it is important that the financial statistics used at the denominator of the multiple follows the same *ratio*.

DoorDash operates in the online food delivery industry in the US, Canada, and Australia, where the US is its biggest market. Its direct competitors are Grubhub, Postmates, and Uber Eats. However, given the company's intention to pursue a geographic expansion strategy, as reported in the IPO prospectus, other potential competitors could be Just Eat Takeaway.com and Delivery Hero.

Consistent with the information provided in the IPO document, the following platforms have been considered as comparable for the relative valuation: Grubhub, Just Eat Takeaway.com, Delivery Hero, and HelloFresh. Companies such as Postemates have been discarded due to lack of information, whereas Uber Eats has not been considered since ratios available are only for the whole company UBER, whose core business is different from DoorDash's one.

In relative valuation, it is crucial to use multiples that have as a financial statistic a variable which is a value driver for the industry, and since DoorDash operates in the online food delivery industry, has negative income, and double-digit growth, the following ratios have been chosen: EV/Revenues, EV/EBITDA, EV/Daily orders, EV/Active consumers, and EV/Restaurants. While the first two ratios are common while performing relative valuation, the remaining three have been adopted due to the specific characteristics of the industry and the company, since most of the firms operating in the online food delivery industry have negative EBIT and earnings.

To run the multiple valuation, forward multiples have been used because the main aim is to evaluate the firm, and therefore, we are more concerned about the future performance and value creation of the company rather than the past ones. Indeed, forward multiples are characterized by the fact that the financial at the denominator is forward-looking, whereas the numerator is a current value. It is necessary to highlight that 2020 forward multiples have been adopted since at the moment of the IPO there were no official data for the year 2020. The only exception is for EV/EBITDA for which the 2021 estimation has been adopted because the expected EBITDA for 2020 is negative.

Moreover, the value of the firm has been computed using the average of the multiples, the median, the maximum, and the minimum. The following sections will discuss the formulas and results obtained using the average value of the multiples, but clearly, the procedure remains the same when using the median, maximum, and minimum.

3.4.2.1 DoorDash Valuation: Relative valuation (EV/Revenues)

This multiple has the benefit that it is less affected by accounting principles adopted by the company and can be used also in case of losses.
The following table shows the value estimated using the EV/Revenues multiple.

Table 3.12

FY 2020	EV/Revenues	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	3.91			
Delivery Hero	10.33			
Just Eat Takeaway.com	6.75			
HelloFresh	2.83			
median	5.33	13,616.37	14,197.37	44.69
average	5.96	15,213.04	15,794.04	49.72
max	10.33	26,389.71	26,970.71	84.91
min	2.83	7,229.71	7,810.71	24.59

Source: Own work (on Bloomberg data).

Using the average EV/Revenues, the estimated enterprise value of the firm is about $15.21 billion, whereas the equity value is equal to $15.79 bilion.
The following formulas show how these values have been estimated.

$$DoorDash\ EV = 5.96 * DoorDash\ revenues\ 2020$$

$$DoorDash\ Equity\ value = EV - DoorDash\ Net\ financial\ position\ 2019$$

Considering the total number of shares outstanding[236], the share price of DoorDash should be $49.72.

$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

As we can notice from the table the share price obtained using the average, the median, the maximum, and the minimum of the forward EV/Revenues are dissimilar, and all of them

[236]Source: DoorDash IPO prospectus stated that after the IPO the total number of shares will be 317,656,521.

sensibly different from the IPO share price. However, this is consistent with the Citron's research that suggests how far the EV/Revenues for DoorDash is from its competitors.

3.4.2.2 DoorDash Valuation: Relative valuation (EV/EBITDA)

The second multiple adopted is the EV/EBITDA, since it is the most used when comparable firms have different financial leverage.
The following table shows the value estimated using the EV/EBITDA multiple.

Table 3.13

FY 2021	EV/EBITDA	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	57.28			
Delivery Hero	N/A			
Just Eat Takeaway.com	171.68			
HelloFresh	23.91			
median	57.28	12,407.99	12,988.99	40.89
average	84.29	18,258.89	18,839.89	59.31
max	171.68	37,189.31	37,770.31	118.90
min	23.91	5,179.38	5,760.38	18.13

Source: Own work (on Bloomberg data).

Using the average of this multiple, the estimated enterprise value of the firm is about $18.26 billion, whereas the equity value is equal to $18.84 bilion.
The following formulas show how these values have been estimated.

$$DoorDash\ EV = 84.29 * DoorDash\ EBITDA\ 2021$$

$$DoorDash\ Equity\ value = EV - DoorDash\ Net\ financial\ position\ 2019$$

Considering the total number of shares outstanding[237], the share price of DoorDash should be $59.31.

$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

As we can see from the table the share price obtained using the average, the median, the maximum, and the minimum of the forward EV/EBITDA are very dissimilar. Moreover, the only result which is close to the IPO share price is the maximum one obtained.

[237] Source: DoorDash IPO prospectus stated that after the IPO the total number of shares will be 317,656,521.

3.4.2.3 DoorDash Valuation: Relative valuation (EV/Daily orders)

Different from the other two multiples, this is a specific multiple that can be used in the online food delivery industry, where more traditional multiples such as P/E cannot be adopted because companies tend to have negative earnings. In the numerator, there is the enterprise value, whereas in the denominator daily orders.

The following table shows the value estimated using the EV/Daily orders multiple.

Table 3.14

FY 2020	EV ($)	Daily orders	EV/Daily orders	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	745,000	9,547.11			
Delivery Hero	31,203,750,000	2,650,000	11,775.00			
Just Eat Takeaway.com	16,859,900,000	1,610,959	10,465.75			
HelloFresh	12,959,400,000	216,556	59,843.18			
median	14,909,650,000	1,177,979.50	11,120.38	22,057.95	22,638.95	71.27
average	17,033,912,500	1,305,628.75	22,907.76	45,438.94	46,019.94	144.87
max	31,203,750,000	2,650,000.00	59,843.18	118,702.60	119,283.60	375.51
min	7,112,600,000	216,556.00	9,547.11	18,937.28	19,518.28	61.44

Source: Own work (on publicly available information).

Using the average EV/Daily orders, the estimated enterprise value of the firm is $45.44 billion, whereas the equity value is equal to $46.02 billion.

The following formulas show how these values have been estimated.

$$DoorDash\ EV = 22{,}908 * DoorDash\ daily\ orders\ 2020$$

$$DoorDash\ Equity\ value = EV - DoorDash\ Net\ financial\ position\ 2019$$

Considering the total number of shares outstanding[238], the share price of DoorDash should be $144.87.

$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

As we can see from the table the share price obtained using the average, the median, the maximum, and the minimum of the forward EV/Daily orders are very dissimilar. The adoption of this multiple has led to higher share prices, with the maximum level which is almost 4 times the IPO share price.

[238] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

3.4.2.4 DoorDash Valuation: Relative valuation (EV/Active consumers)

This multiple, as the previous one and the following one, has the benefit that it is not affected by the accounting principles adopted by the company and can be used also in case of losses. However, at the same time, it is rarely a direct value driver. In addition, there could be divergences in how companies consider a customer.

It is worthy to note that the use of this multiple has increased in growing tech industries where firms have losses, as discussed by a Norwegian McKinsey partner during a seminar on Fintech.[239]

The following table shows the value estimated using the EV/Active consumers multiple.

Table 3.15

FY 2020	EV ($)	Active consumers	EV/Active consumers	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	33,000,000	215.53			
Delivery Hero	31,203,750,000	20,000,000	1,560.19			
Just Eat Takeaway.com	16,859,900,000	60,000,000	281.00			
HelloFresh	12,959,400,000	5,000,000	2,591.88			
median	14,909,650,000	26,500,000.00	920.59	16,570.67	17,151.67	53.99
average	17,033,912,500	29,500,000.00	1,162.15	20,918.70	21,499.70	67.68
max	31,203,750,000	60,000,000.00	2,591.88	46,653.84	47,234.84	148.70
min	7,112,600,000	5,000,000.00	215.53	3,879.60	4,460.60	14.04

Source: Own work (on Bloomberg data).

Using the average EV/Active consumers, the estimated enterprise value of the firm is $20.92 billion, whereas the equity value is $21.50 billion.

The following formulas show how these values have been estimates.

$$DoorDash\ EV = 1{,}162 * DoorDash\ active\ consumers\ 2020$$

$$DoorDash\ Equity\ value = EV - DoorDash\ Net\ financial\ position\ 2019$$

Considering the total number of shares outstanding[240], the share price of the firm should be $67.68.

[239] Source: Webinar on the effect of COVID-19 on the fintech sector, held by McKinsey at BI Norwegian Business School.

[240] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

As we can see from the table the share price obtained using the average, the median, the maximum, and the minimum of the forward EV/Active consumers are dissimilar, and none of the results is close to the IPO share price.

3.4.2.5 DoorDash Valuation: relative valuation (EV/Restaurants)

This multiple has the benefit that it is less affected by accounting principles adopted by the company and can be used also in case of losses. However, at the same time, it is rarely a direct value driver. In addition, there could be divergences in how companies consider restaurants in their platforms since there are different typologies of business relations between platforms and restaurants.

The following table shows the value estimated using the EV/Active consumers multiple.

Table 3.16

FY 2020	EV ($)	Restaurants	EV/Restaurants	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	300,000	23,708.67			
Delivery Hero	31,203,750,000	550,000	56,734.09			
Just Eat Takeaway.com	16,859,900,000	244,000	69,097.95			
median	16,859,900,000	300,000.00	56,734.09	22,126.30	22,707.30	71.48
average	18,392,083,333	364,666.67	49,846.90	19,440.29	20,021.29	63.03
max	31,203,750,000	550,000.00	69,097.95	26,948.20	27,529.20	86.66
min	7,112,600,000	244,000.00	23,708.67	9,246.38	9,827.38	30.94

Source: Own work (on Bloomberg data).

Using the average EV/Restaurants, the estimated enterprise value of the firm is about $19.44 billion, whereas the equity value is equal to $20.02 billion. The following formulas show how these values have been estimates.

$$DoorDash\ EV = 49{,}847 * DoorDash\ restaurants\ 2020$$

$$DoorDash\ Equity\ value = EV - DoorDash\ Net\ financial\ position\ 2019$$

Considering the total number of shares outstanding[241], the share price of DoorDash should be $63.03.

[241] Source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm#rom752207_16).

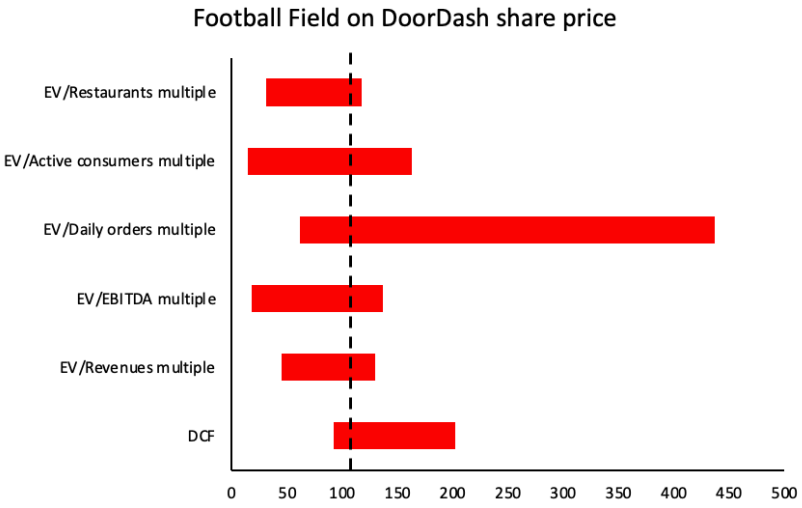
$$DoorDash\ share\ price = \frac{DoorDash\ Equity\ value}{total\ DoorDash\ shares\ outstanding}$$

As we can see from the table the share price obtained using the average, the median, the maximum, and the minimum of the forward EV/Restaurants are quite similar. However, the share prices derived are substantially lower than the IPO share price.

3.4.3 DoorDash Valuation: "Football field"

It is common to summarize the results from different valuation methodologies into a chart, which is referred as football field. The following chart shows the price ranges of DoorDash's share price according to the different methodologies used throughout the analysis.

Chart 3.3



Source: Own work.

The black dotted line represents the IPO share price identified by the investment banks that worked on the IPO of DoorDash. As we can notice, the dotted line crosses every range, but it is close to the maximum to some of them and to the minimum to others. Moreover, it is interesting to see how the range obtained through the EV/Daily orders is wide, this probably because the ratio does not capture the value obtained by delivery platforms from each order, which is a better value driver than number of orders for the enterprise value.

Conclusion

The spread of COVID-19 has reshaped people's habits and firms' businesses. As in every crisis, there are winners and losers, and while the pandemic has forced several companies to re-size or close their activities, others were able to gain and exploit the new challenging environment.

Impressive has been the growth of the online food delivery industry, where platforms have been able to more than double their revenues. Among them, DoorDash's performance has been outstanding. Indeed, its revenues not only increased by c.a. 187% between 2019 and 2020, but the firm was also able to successfully get listed during the pandemic. The IPO share price established by investment banks has been $102.00, close to the estimation derived via the DCF model provided in this work. Different from other industries, estimate the market value of companies operating in the online food delivery industry is not straightforward, mainly because most service providers have not been able to generate profits yet. This uncertainty is reflected in financial markets as well, with extreme volatility affecting DoorDash's share price. Indeed, the close price of the first trading day was $160.00, +56.86% of the IPO share price, but at the end of December it was $142.75. In February 2021 the share price reached its historical highest of $215.16, but the lowest was achieved in May ($112.99).[242] The following graph shows graphically the share price in the first 6 months of trading to better capture its volatility.

Chart C.1

DoorDash's share price

Source: Yahoo Finance.

[242] Based on data available until June 2021.

The spread of the virus did not only increase the activity of online food delivery platforms in the short term, but it will also have, according to me, a long-run effect. Indeed, due to the pandemic, people were forced to order online to eat restaurants' meals, and several families and individuals tried the service for the first time, and it is very likely that a portion of those who were forced to use online food delivery platforms will continue to do so even after the pandemic. This is probably the reason why these service providers are trading at a high price compared to fundamentals, and for this reason they can be defined as growth stocks. However, it is important to highlight that despite the boost that COVID-19 had on platforms' activities and revenues, these firms are still generating losses, meaning that they still need to find best practices and the sector still requires time to become mature. For this reason, I expect the share price of firms in the online food delivery industry to be very volatile in the near future, and I believe consolidation processes will take place with several M&A deals.

Bibliography

- Angelini E., Foglia M., 2018. The Relationship Between IPO and Macroeconomics Factors: An Empirical Analysis from UK Market.

- Berk, Jonathan B. and Peter M. DeMarzo. Corporate Finance. Fourth edition, Global edition. Harlow, England [etc. Pearson, 2017. Print.

- Campbell Tim, 1979. Optimal Investment Financing Decisions and the Value of Confidentiality, Journal of Financial and Quantitative analysis 14, 913-924.

- Charlene Li, Miranda Mirosa, Phil Bremer, 2020. Review of Online Food Delivery Platforms and their Impacts on Sustainability.

- Chishti, Susanne, and Janos Barberis. The Fintech Book. Chichester, West Sussex, United Kingdom: Wiley, 2016.Print.

- Di Taranto, Giuseppe. La globalizzazione diacronica. Torino: G. Giappichelli, 2013. Print.

- Fleuriet, Michel. Investment Banking Explained: an Insider's Guide to the Industry. New York [etc. McGraw-Hill, 2008. Print.

- J.R. Graham and C.R. Harvey, 2001. The Theory and Practice of Corporate Finance: Evidence from the Field. Journal of Financial Economics 60: 187-243.

- Kadlec, Gregory B., John J. McConnell, 1994. The effect of market Segmentation and Illiquidity on Asset Prices, Journal of Finance 49, 611-636.

- La Porta R., F. Lopez-De-Silanes, A. Shleifer, R. W. Vishny, 1997. Legal determinants of external finance.

- Liaw, K. Thomas. The business of Investment Banking: a Comprehensive Overwiew /. Hoboken, N.J.: Wiley, 2011. Print.

- London Stock Exchange, 2010. A guide to listing on the London Stock Exchange.

- Nadine Zylberberg. Food Delivery Apps are Changing the Way We Eat

- Pagano, M., Panetta, F. and Zingales, L. 1998. Why do companies go public?, An empirical analysis. The Journal of Finance, Vol. 53:1.

- Palombo, Danilo. Il percorso storico della globalizzazione. 2005-2006.

- Porter, Michael E. Competitive Advantage: Creating and Sustaining Superior Performance: with a New Introduction. New York: Free Press, 1998. Print.

◊ Rajan, Raghuram G., 1992. Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt, Journal of finance 47, 1367-1400.

◊ Ries, Eric. The Lean Startup: How today's entrepreneurs use continuous innovation to create radically successful businesses. New Tork: Crown business, 2011.

◊ Rosenbaum, Joshua., and Joshua. Pearl. Investment Investment Banking Valuation, Leveraged, and Mergers & Acquisitions. 2nd ed. Hoboken: Wiley, 2013. Print.

◊ Stephen G. Marks, 1999. The Separation of Ownership and Control.

◊ Wang Chen, 2018. Food Delivery Apps Skewered for Creating Plastic Waste

Sitography

◊ BlackRock
https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

◊ Bloomberg
https://www.bloomberg.com/news/articles/2020-12-09/doordash-set-for-trading-debut-after-ipo-raises-3-37-billion
https://www.bloomberg.com/news/articles/2020-12-17/doordash-sinks-after-citron-calls-ipo-most-ridiculous-of-2020

◊ Citron Research
https://citronresearch.com/wp-content/uploads/2020/12/DoorDash-The-Most-Ridiculous-IPO.pdf

◊ CNBC
https://www.cnbc.com/2019/03/23/heres-what-you-should-know-about-the-ipo-process.html
https://www.cnbc.com/2019/05/10/uber-ipo-stock-starts-trading-on-the-new-york-stock-exchange.html

◊ Deloitte
www2.deloitte.com/content/dam/Deloitte/uk/Documents/corporate-finance/deloitte-uk-delivering-growth-abridged.pd

◊ DoorDash
https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm

◊ OECD
https://www.oecd.org/coronavirus/policy-responses/global-financial-markets-policy-responses-to-covid-19-2d98c7e0/

◊ Federal Reserve
https://www.federalreserve.gov/faqs/economy_14400.htm

◊ Forbes
https://www.forbes.com/sites/greatspeculations/2020/12/08/doordashs-new-valuation-is-even-more-ridiculous/?sh=296c95743b34
https://www.forbes.com/sites/sarwantsingh/2019/09/09/the-soon-to-be-200b-online-food-delivery-is-rapidly-changing-the-global-food-industry/?sh=23ca6febb1bc

◊ Financial Times
https://www.ft.com/content/a27f1a55-9436-41c2-9ef6-ea868e8ee964
https://www.ft.com/content/d3f3919f-63d6-453f-82f3-da77dc3bf8df

◊ Investopedia
https://www.investopedia.com/news/how-much-does-it-cost-list-ico-token/
https://www.investopedia.com/terms/d/directpublicoffering.asp
https://www.investopedia.com/terms/d/dutchauction.asp
https://www.investopedia.com/terms/h/hedgefund.asp
https://www.investopedia.com/terms/u/unicorn.asp
https://www.investopedia.com/terms/p/porter.asp
https://www.investopedia.com/terms/u/underpricing.asp
https://www.investopedia.com/terms/u/underwriter-syndicate.asp

◊ J.P. Morgan
https://www.jpmorgan.com/insights/research/online-food-delivery

◊ McKinsey
https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery

◊ Nasdaq
https://listingcenter.nasdaq.com/Assets/Initialguide.pdf

◊ NYSE
https://nyseguide.srorules.com/listed-company-manual

◊ PWC
https://www.pwc.com/gx/en/services/audit-assurance/ipo-centre/ipo-journey/ipo-watch-data-explore-exchange.html
https://www.pwc.com/us/en/services/deals/library/cost-of-an-ipo.html
https://www.pwc.com/gx/en/services/audit-assurance/ipo-centre/global-ipo-watch.html

◊ The New York Times
https://www.nytimes.com/2010/04/26/opinion/26krugman.html

◊ The World Bank
https://data.worldbank.org/indicator/NY.GDP.PCAP.CD
https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?end=2019&start=1995
https://data.worldbank.org/indicator/FR.INR.RINR?end=2019&start=1961
https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?end=2020&start=1995
https://data.worldbank.org/indicator/SP.POP.TOTL

◊ UBS
https://www.ubs.com/global/en/wealth-management/chief-investment-office/investment-opportunities/sustainable-investing/2019/food-revolution.html

◊ World Health Organization
https://www.who.int/news/item/27-02-2020-a-joint-statement-on-tourism-and-covid-19---unwto-and-who-call-for-responsibility-and-coordination

◊ Other websites
http://fintech.fabbricantidelweb.it
http://lumosbusiness.com/business-model-innovation-ghost-kitchens/
http://www.drinkmilkinglassbottles.com/a-quick-history-home-milk-delivery/
https://bizfluent.com/info-12005678-negative-roi-mean.html

https://blog.oxfordcollegeofmarketing.com/2016/06/30/pestel-analysis/
https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_china_digital_payments_klein.pdf
https://businessteacher.org/pestel/deliveroo-pestel.php
https://doshii.io/the-food-delivery-industry-and-technology/
https://folo.my/blog/what-is-a-food-delivery-service
https://fortune.com/2020/11/16/airbnb-ipo-initial-public-offering-coronavirus-impact/
https://kolonial.no/sok/?q=egg
https://medlem.nortura.no/prislister/avregningspriser-egg-article17909-11969.html.
https://percentotech.com/bobbyjdavidson/how-technology-is-revolutionizing-food-delivery/
https://productmint.com/the-food-delivery-business-model-a-complete-guide
https://underscore.factor75.com/the-history-evolution-of-food-delivery/
https://strategicmanagementinsight.com/tools/porters-five-forces.html
https://www.bondelaget.no/konsesjonogkvote/, https://kolonial.no/sok/?q=egg
https://www.businessinsider.com.au/heres-the-big-stat-grubhubs-new-competitors-covet-2015-2
https://www.businessofapps.com/data/food-delivery-app-market/
https://www.cityam.com/just-eat-takeaway-shareholders-approve-grubhub-acquisition/
https://www.cgap.org/research/publication/china-digital-payments-revolution
https://www.fundable.com/learn/resources/guides/crowdfunding/what-is-crowdfunding
https://www.gov.uk/transition
https://www.inc.com/encyclopedia/direct-public-offerings.html
https://www.independent.co.uk/life-style/food-and-drink/dabbawalas-food-delivery-system-mumbai-india-lunchbox-work-lunch-tiffin-dabbas-a7859701.html
https://www.matprat.no/artikler/ravarer/tall-og-fakta-om-egg/
https://www.nerdwallet.com/article/investing/best-performing-stocks
https://www.refinery29.com/en-us/2017/04/149332/first-pizza-delivery-story
http://www.streetofwalls.com/finance-training-courses/investment-banking-technical-training/initial-public-offerings/
https://www.treasurydirect.gov/instit/annceresult/annceresult.htm

https://www.vox.com/2017/5/15/15610786/amazon-jeff-bezos-public-company-profit-revenue-explained-five-charts

Databases

- Bloomberg
- Damodaran
- Refinitiv Eikon
- Statista
- Thomson Reuters
- Yahoo Finance

Summary

Introduction

Nowadays we live in a globalized world, where the economic, social, and cultural interconnections among countries and people are becoming stronger and more evident.
In December 2019 a new disease, caused by COVID-19, was affecting the Chinese population. Because of the pandemic each country introduces restrictions on economic and social activities, businesses were forced to temporarily close and only necessary movements were allowed. The spread of the virus has reshaped people's behaviors, habits, and relationships, and this is the reason why besides struggling companies we can see firms able to boost their revenues and succeed. Within the tech industry, impressive has been the performance of the online food delivery industry and this is the reason why this work will focus on this sector, especially on DoorDash, that despite the outbreak of the virus has been able to get listed.
The work will be divided in three chapters. The first chapter will focus on IPOs from an academic point of view, the second chapter on the online food delivery market from a strategic and economic point of view, the third chapter will focus on DoorDash and its IPO, and a simulation of the valuation will be provided. The work will end with a conclusion where there will be a discussion of the main findings and general thoughts on the online food delivery industry.

Chapter 1 – Initial Public Offering

1.1 What is an IPO?

IPO stands for Initial Public Offering, and it is the process through which a company gets listed on a public Stock Exchange.
There are some characteristics that a company that wants to be listed should have to be sure there is enough interest by the market. It is important that the firm operates in a sector that is attractive for investors, where there is not a market leader and ideally where market entry barriers are high and exit barriers are low. At the same time, it is key that the company has a strong financial performance, good corporate governance, and enough free float to avoid liquidity discount.

The IPO is a crucial moment for the life of a company because it changes the way it relates to the external world. A listed company can find financial resources more easily than a private one, but at the same time, it is subject to stricter rules.

1.2 The process

The IPO process takes on average 4 to 6 months and it can be divided into a private and public phase. In the private phase, the company organizes all the documents and steps that are required to be public, whereas in the public phase the company announces its intention to be listed and target potential investors.

The private phase is divided into the preparation of the IPO, preliminary valuation, and analyst presentation. In the preparation of the IPO, the company does the preliminary work which is essential for the IPO, such as kick off meeting, appoint the advisors, and define the timetable. In the preliminary valuation phase, there is a discussion between the firm and investment banks regarding its valuation. This valuation is not very relevant since it is only preliminary, and it could be different from the final one. The last part of the private phase is the analyst presentation, reached this stage, due diligence is almost completed, and it is common practice for senior management to meet with the research analyst employed by the bookrunners before the beginning of the public phase. At the same time, research analysts publish pre-deal research on the firm, which is an investor education document, is independent of the company and it is legally unconnected with the offering. It provides, the equity story behind the valuation. The public phase is divided into investor education, book building, and aftermarket. Investor education is the process through which the abovementioned analysts propose the story to investors using the research they have written. First, there will be the Announcement of the Intention To Float (AITF), which is a public announcement where the company provides information about its willingness to be listed. The research (pre-deal research) will be published, and key investors targeted. This process is vital because allows the global coordinator/sponsor and the research team to educate investors and receive feedbacks which are important because are used to create a valuation range (generally 20-25%).

Once the price range has been agreed and the prospectus issued, there will be the management roadshow, which set the beginning of the book building phase. It consists of a series of meeting with potential investors. The day in which roadshows are started is usually the day in which the books are opened to take investors' orders. Book building is indeed the process by which the book containing investors' orders is built. It is a list of investors that want to buy the shares, and each investor will provide a quantity and a price, since the banks do not provide the IPO

price upfront, but only a range. Indeed, the IPO price is a discovery process done through the book-building exercise. Indeed, once the book of demands closes, bookrunners review it and suggest a price which should ensure the maximization of the IPO proceeds while being consistent with a favorable aftermarket performance. Finally, there is the aftermarket, which is the final step of the IPO process. First, the company's shares are admitted to listing and the shares started to be traded in the stock exchange (admission phase). In order to avoid an excessive drop in the share price in the 30 days following the listing, there are often stabilization mechanisms that usually represent 10-15% of the base deal size.
There are several objectives that a company would like to reach after the IPO process. It would like to maximize the IPO price, maintaining at the same time a stable and rising aftermarket.

1.3 Key actors: Role of Investment Banks

The IPO process involves several players, and among all crucial is the role of investment banks. Indeed, differently, from what one could expect shares are not sold directly from the issuer/seller to investors, but there are one or more investment banks, called underwriters, that act as intermediaries.
There could be two different types of underwriting: firm commitment underwriting and best efforts underwriting. In case of firm commitment underwriting, the underwriting syndicate buys from the issuer the entire size of the IPO and re-sells it to investors. On the contrary, in the best effort underwriting, underwriters must make their "best-effort" to sell the issuance at the agreed price, but the risk of a failure will be borne exclusively by the issuer. Besides underwriting, investment banks provide four essential services during the IPO: they formulate the method used to issue the securities, they price and sell them, and provide stabilization in the aftermarket.

Chapter 2 – The online food delivery industry

2.1 The online food delivery industry (focus on the US market)

Online food delivery refers to the process whereby food that was ordered online is prepared and delivered to the consumer.
Within this industry, there could be two different delivery service solutions: restaurant-to-

consumer-delivery and platform-to-consumer delivery. In the first case, the delivery is managed directly by the restaurant, in the second one, the platform is in charge of the delivery. The spread of the internet, as well as the increased penetration of smartphones, have been crucial for the rise and development of this industry.

Every solution becomes popular when there is a need for them. The spread of Covid-19 forced governments to limit social activities and increase social distance. A lot of non-essential businesses such as restaurants were forced to close temporarily. People were forced to stay at home, and the only way to avoid cooking was by ordering food. At the same time, restaurants were allowed to work only on delivery.

The following table provides information on the turnover for online food delivery worldwide.

Table 2.1

Definition
worldwide, Online Food Delivery in EUR

Revenue in million €

	2017	2018	2019	2020	2021	2022	2023	2024	CAGR in %
Total	67,479.45	80,954.62	95,155.19	120,825.85	134,194.15	145,402.61	154,405.72	161,472.59	13.27
Platform-to-Consumer Delivery	31,262.91	39,218.31	47,635.27	62,649.46	70,502.52	76,944.60	81,968.67	85,785.01	15.51
Restaurant-to-Consumer Delivery	36,216.54	41,736.31	47,519.92	58,176.39	63,691.64	68,458.00	72,437.05	75,687.59	11.10

Source: Statista (Forecast adjusted for expected impact of COVID-19), November 2020, exchange rate: 0.88562 EUR/USD

The online food delivery industry depends a lot on the country which is under examination, and it is interesting to analyze the US one, which is the main market of DoorDash. In 2020 total revenues in the US have been equal to €23.5 billion, representing 19.42% of the global revenues of the industry. In terms of expectation, the US market is expected to grow slowly, reaching $42 billions of revenues in 2025.[243] In terms of competition, the US market is very competitive, with four big players: Postmates, UberEats, DoorDash, and Grubhub.

2.2 Porter's five forces in the online food delivery industry

This model, by Michael Eugene Porter, is used to study the structure of an industry, in order to understand its attractiveness. The five forces envisaged by the model are the threat of entry, bargaining power of suppliers, bargaining power of buyers, the threat of substitutes, and industry competition. An industry where there are high barriers to entrance, weak suppliers' and buyers' bargaining power, few substitutes and low competition is very attractive and high profits can be generated.

Talking about the threat of entry is important to notice that capital requirements could be high,

[243] Source: https://www.businessofapps.com/data/food-delivery-app-market/#4 (data: Research & Markets, IMARC group).

especially for the development of the platform, that should be scalable since the beginning, but at the same time, the industry is not heavily regulated. Suppliers' bargaining power is important because it affects the costs of the firm, thus its profit. In online food delivery, suppliers can be considered those restaurants that decide to use a third-party platform for the delivery. In general, restaurants do not have bargaining power and third-party app are able to charge high fees, which are on average 20-30%. Talking about buyer's bargaining power, in the online food delivery industry, buyers are individuals that decide to use online apps and platforms to order food. In most of the cases, there are a lot of customers, and the volume of their orders is small, they do not have bargaining power. The threat of substitutes refers to the simplicity through which buyers can find substitute goods or services. Companies that differentiate their offer are able to distinguish themselves from competitors and charge a higher price. In the online food delivery industry, the threat of substitutes is high due to the nature of the business. Indeed, it usually happens that the same restaurant has agreements with different online food delivery platforms. There are several ways through which online food delivery players can try to minimize this threat, such as having unique restaurant partners, loyalty programs, and a simple and user-friendly platform. The last force refers to how much competitive the industry is, depending on how many competitors there are and their ability to erode market share. It is hard to talk about competition in the online food delivery industry since there are markets with low players (e.g., China) and others with a lot (e.g., the US). However, competition is so high that Forbes has described the industry as a brutal business, where different strategies such as predatory pricing are used to beat the competition and erode market share.[244]

2.3 Impacts of online food delivery industry: economy, society, and environment[245]

From an economic point of view, the rise of online food delivery has created a lot of job opportunities directly and indirectly. A lot of programmers are hired to develop and maintain platforms. At the same time a lot of people, especially youngers find working as a rider one of the best job opportunities in the market. Indeed, despite low salaries, the job leaves the possibility to organize the work as the rider prefers, and no specific skills are required. Indirectly, other businesses were positively impacted by the wave of online food delivery. Indeed, the demand for electric bicycles, as well as packaging, increased.

[244] Source: https://www.forbes.com/sites/sarwantsingh/2019/09/09/the-soon-to-be-200b-online-food-delivery-is-rapidly-changing-the-global-food-industry/?sh=23ca6febb1bc.
[245] Main Source: Charlene Li, Miranda Mirosa, Phil Bremer, 2020. Review of Online Food Delivery Platforms and their Impacts on Sustainability.

However, although the online food delivery industry gives jobs to thousands of people, at the same time there are concerns on poor working conditions. Clearly, the main industry that has been impacted by the online food delivery industry is the restaurant one. From a social point of view online food delivery is changing our lifestyle; it is impacting not only the way in which we eat, but also human and family relations. In the past, almost every family had a routine, and preparing and cooking meal was an occasion to spend time with family members, whereas nowadays it is becoming even more uncommon. Online food delivery is able to satisfy all customers' needs, allowing consumers to order even at night. However, it could create a serious health problem, encouraging a sedentary lifestyle. Moreover, another big issue that must be addressed are the high numbers of incidents involving riders. Environmentally, one of the main problems of online food delivery is the excessive use of packaging. Generally, plastic bags and boxes are used because they are cheap, light, and resistant enough. Another debated topic is food waste, but it seems that meals prepared by restaurants cause less food waste than those prepared at home.

Chapter 3 – IPO case: DoorDash

3.1 DoorDash: Company overview

DoorDash was founded in January 2013, when the founders, Tony Xu, Evan Moore, Stanley Tang and Andy Fang, launched a website displaying menus of local restaurants in Palo Alto, California. DoorDash's mission is to grow and empower local economies, indeed they founded the firm to be a merchant-first business. Nowadays, they connect more than 390,000 merchants, 18 million consumers, and 1 million Dashers (drivers) in the US, Canada, and Australia.
Talking about financial statistics, DoorDash revenues in 2019 were $885 million, three times the value registered the previous year ($291 million), whereas in 2020[246] the company registered $1.9 billion in revenues. However, it is important to specify that despite increasing revenues, the corporation has not been able to generate profits, however, the loss in 2020[247] ($149 million) was sensibly lower than in 2019 ($667 million). Talking about corporate governance, the board of directors (BOD) is composed of 10 members, the CEO and 9 non-executive directors. There are three BOD committees: Audit Committee, Leadership

[246] Until September 2020.
[247] Until September 2020.

Development, Inclusion, and Compensation Committee, and Nominating and Corporate Governance committee.

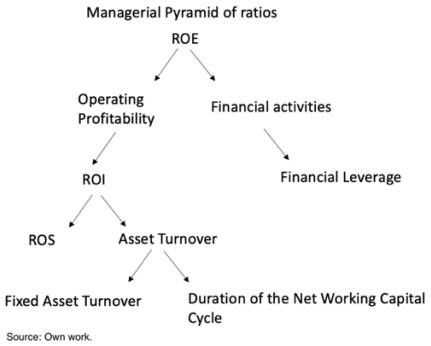
From a business model point of view, DoorDash's platform is based on proprietary technology, each order provides information that is analyzed by the algorithms of the company to improve efficiency and effectiveness.

3.2 DoorDash: Financial Performance

Firm's financial performance will be analyzed through profitability and solvency analysis. The profitability analysis focuses on firm's ability to generate profits, whereas the solvency analysis studies the ability of the company to pay its obligations.

The profitability analysis is important to understand if the company is creating or destroying value. The following picture shows the managerial perspective, which is the only one discussed in this summary.[248]

Picture 3.1



ROE stands for Return On Equity and it measures the overall profitability of the firm. It is given by Net Income (loss) over Equity, which is equity net of the Net Income of the year. In 2019, DoorDash has an ROE of 1.67, which is high, but is due to high losses and negative equity, which is a red flag for investors. After the ROE there is the first breakdown, which is the distinction between operating profitability and financial activities. The operating profitability indicates the profitability generated by the business and it is measured by the ROI (Return On Investments), which is EBIT over NOA. In 2019, DoorDash's ROI has been equal to -1.27 due to negative EBIT. A negative ROI is not good since it means the company is destroying value, however, it is common to see negative ROI in the initial period of an investment. ROI is also given by the product of Return On Sales (ROS) and Asset Turnover. ROS measures the efficiency of the company operating activities, whereas Asset Turnover its

[248] In the thesis the analyst's perspective will be analyzed as well.

effectiveness. In 2019, DoorDash ROS has been -0.75, whereas Asset Turnover 1.69. Talking about Asset Turnover, the firm performance in 2019 has been equal to 1.69 which means that firm's revenues were twice as the capital invested in operating activities, meaning that the company is effective. The last breakdown for the operating profitability, from the managerial perspective, focuses on the Fixed Asset Turnover and the Duration of the Net Working Capital cycle. The Fixed Asset Turnover focuses on fixed operating assets, measuring how much the fixed operating assets are able to generate operating turnover. DoorDash's Fixed Asset Turnover in 2019 was 1.26, which is a good performance since it should be higher than 1. Different from the Fixed Asset Turnover, the Duration of the Net Working Capital Cycle, analyzes short-term operating assets. If it is positive, it tells us how many days on average the company needs to wait after the payment of suppliers to collect money. If negative, it measures how many days the company collects money from sales before the payment of suppliers. In 2019, DoorDash's Net Working Capital Cycle was 13, meaning that on average DoorDash pays its suppliers 13 days before it collects money. Talking about financial leverage, in 2019, DoorDash D/E was -2.26, where the negative sign is due to the negative equity of the company. The solvency analysis focuses on the firm financial situation: if it is able to pay its obligations. Obligations can be short-term or long-term, and this is the reason why the solvency analysis is divided into liquidity analysis which examines the former and solidity the latter. Starting with the liquidity analysis, the first ratio that should be computed is the current ratio (current assets/current liabilities). Current assets generate cash within a year, whereas current liabilities should be paid within 12 months, for this reason, the ratio should be higher than 1. In the case of DoorDash, its current ratio for the year 2019 has been equal to 2.61. However, since in current assets there are also inventories, which could require more than a year to be converted in cash, often also the quick ratio is computed, where from the numerator inventories are subtracted. It is important that this ratio is greater than 1. In the case of DoorDash, it is equal to 2.61 since the company does not have inventories. The last ratio to be performed in order to complete the first level of the liquidity analysis is the cash ratio (cash/current liabilities). DoorDash cash ratio in 2019 was good since it was 0.67. The second level of the liquidity analysis consists of the duration of the net working capital cycle, which has been computed previously. After analyzing the short-term liabilities of the company, it is important to run the solidity analysis to understand if the firm can pay its long-term obligations. The first ratio is the 1st structural ratio, which tells how much of the fixed assets are financed by equity. In 2019, DoorDash's first structural ratio was -1.47, where the negative sign is due to firm's negative equity. The second structural ratio, which should always be greater than 1, tells us

how much of the non-current assets are financed through long term liabilities, both debt and equity. In 2019, DoorDash's 2nd structural ratio has been equal to 1.84, much higher than the theoretical threshold. The second level of analysis for the solidity analysis focuses on the two sources of financing. The first ratio that can be used is total debt over total equity, in 2019 DoorDash performance on this ratio was 0.47[249]. Another ratio that should be computed is financial debt over equity, which has been computed already in the profitability analysis.
The last ratio of the solidity analysis is fixed assets over current assets, which focuses on the composition of the assets, and the higher it is the higher is the rigidity of the capital. In 2019, the DoorDash ratio was 0.74, suggesting that fixed assets value was 74% of the current ones.

3.3 DoorDash IPO[250]

Despite 2020 has been a turbulent year for almost every sector, the online food delivery industry has been able to exploit the new challenges the world was experiencing. DoorDash was not only able to achieve a three digits growth in its revenues, but it also succeeded in getting listed. Indeed, on 9th December 2020, its shares started to be traded in the New York Stock Exchange, under the ticket "DASH". The initial public offering price has been set equal to $102.00, above the last price range that was $90-$95[251], with a total deal size of $3.37 billion and a market cap at IPO price equal to $32.40 billion[252]. After the expenses, the total proceeds that went to DoorDash were $3.29 billion.
As stated by the company in its IPO prospectus, the main purposes the company wanted to achieve through its IPO were to increase the company's share capital, enhance financial flexibility, and increase share liquidity. Proceeds from the IPO will be used mainly to achieve general corporate purposes connected to net working capital, operating expenses, and capital expenditures.

3.4 DoorDash Valuation

In this section, the focus will be on the valuation of DoorDash. The idea is to simulate what investment banks and advisors have done to identify the IPO share price. Therefore, the underlying assumption is to be in 2020, having the financial statements of 2019 and 2018 and

[249] To compute this ratio convertible preferred stock has been considered as equity, differently from other ratios where it has not specified.
[250] Main source: DoorDash IPO prospectus (https://www.sec.gov/Archives/edgar/data/1792789/000119312520313884/d752207d424b4.htm).
[251] Source: https://www.forbes.com/sites/greatspeculations/2020/12/08/doordashs-new-valuation-is-even-more-ridiculous/?sh=296c95743b34.
[252] Computed as IPO price times total shares outstanding (class A,B and C), as reported by the prospectus.

the pro-forma for 2020. Moreover, the company is not listed yet, since the valuation is needed to identify the IPO share price.
This paragraph will be divided into two different subparagraphs, where intrinsic and relative valuation will be performed.

3.4.1 DoorDash Valuation: Intrinsic valuation

Intrinsic valuation techniques are characterized by the fact that the focus is on specific characteristics that the company or the asset under evaluation has. The method that will be used to capture DoorDash's intrinsic value is the DCF. As the name suggested, in order to perform a discounted cash flow valuation is needed to estimate the discount rate and the free cash flow from operations (FCFO). The discount rate required is the Weighted Average Cost of Capital (WACC), in formula:

$$wacc = \frac{E}{D+E} r_e + \frac{D}{D+E} r_d * (1 - t),$$

Where E is the market value of Equity, D is the market value of Net Debt, r_e is the equity cost of capital, r_d is the debt cost of capital and t is the corporate marginal tax rate.
According to CAPM, the equity cost of capital can be estimated using the following formula:

$$r_e = r_f + \beta_e * (E[R_m] - r_f),$$

Where r_f is the risk-free rate, β_e is the beta equity of the company and E[Rm] is the expected return of the market portfolio. Since DoorDash is a US company, the US 10 years treasury yields will be used as the risk-free rate (0.951%). Beta equity measures the systematic risk of the company. Even though DoorDash is a listed company, the valuation performed here is pre-IPO, when the company was not listed yet, thus the bottom-up approach has been used. First, comparable firms should be identified, their unlevered beta estimated and averaged out. Then the Hamada equation will be used to re-leverage the beta using the specific leverage ratio of the company under evaluation, in formula:

$$\beta_e = \beta_u * (1 + (1 - t) * \frac{D}{E})$$

Where β_u is the average beta unlevered and t and D/E are specific of the company. Talking about the marginal corporate tax rate, in the IPO Prospectus, the firm stated that the federal statutory tax rate that should be applied to the firm is 21%, which will be assumed as the marginal tax rate. The last building block for the beta equity estimation is the market debt to equity ratio. The leverage that should be used is the firm target one. Since there is no disclosure by the company about its target financial leverage, and since an implicit one cannot

be computed, the only alternative is to use as a proxy the average D/E of the industry. For these reasons it has been assumed that DoorDash's target D/E is equal to the average D/E of its competitors, which is 1.35%. With the abovementioned assumptions, the beta equity of the company is 0.837. Another important element that is required to compute the equity cost of capital is the market risk premium (MRP). Based on the data provided by the webpage of Professor Damodaran, the US equity risk premium is 6.01%. Under the assumptions made and running the CAPM, the equity cost of capital for DoorDash is 5.982%. For the debt cost of capital, the interest rate paid on convertible issued has been used (10%). Under the assumptions made and running the WACC formula, DoorDash's weighted average cost of capital is 6.01%.
In order to compute the value of the company using the DCF, it is needed to estimate the future free cash flow from operation (FCFO) for the explicit forecast period and for the terminal value (the normalized FCFO).
The common practice is to consider the explicit time horizon between 5-10 years, since a larger time period can lead to not reliable forecasts, a time horizon of 5 years will be used.
In order to estimate the free cash flows from operations (FCFO), EBITDA, depreciation and amortization (D&A), capital expenditures (Capex), and net working capital have been linked to sales. The following table summarizes the ratio used to estimate DoorDash's FCFO.

Table 3.1

	2020	2021	2022	2023	2024	2025
g. Revenues	188.66%	69.59%	40.89%	26.55%	12.20%	12.20%
EBITDA/Revenues	-2.19%	5.00%	10.00%	15.00%	20.00%	25.00%
D&A/Revenues	4.65%	3.78%	3.78%	3.78%	3.78%	3.78%
Capex/Revenues	6.22%	5.86%	5.86%	5.86%	5.86%	
NWC/Revenues	7.88%	2.23%	2.23%	2.23%	2.23%	

Source: Own work.

Talking about revenues' growth rate, the 2020 figure has been computed pro-rata, given that at the moment of the IPO, only revenues until September 2020 were available. The level for 2021 has been computed as the average of the growth rate between 2020 DoorDash revenues' growth rate, Statista expectation for the revenues growth rate between 2020-2024 in the online food delivery in the US and worldwide.[253] Then, it has been assumed that the company will reach the level of 12.20% by 2024, which is the Statista expectation worldwide for the period 2020-2024. Talking about EBITDA/Revenues, it has been assumed that the company will gradually align its EBITDA margin to 15.82% which is the average between the Restaurant/dining industry (20.21%) and Online retail (10.83%) according to Damodaran database data.

[253] Statista Online Food Delivery Report 2020 (the period covered 2020-2024).

However, to take into account the fact that the industry will be more mature in 5 years, and that efficiency will increase with the consolidation of best practices, the level for the EBITDA margin of 2025 has been assumed to be 25%. Regarding D&A, the last 3 years average of D&A/Revenues has been computed and it has been assumed that the company will maintain constant this figure in the future. The same assumption has been used for Capex/Revenues[254] and NWC/Revenues.

The main assumption is that starting from 2025 the company will enter its steady state where it has exploited all its competitive advantages. Since we cannot assume that the company, in its steady-state, can grow more than the economy, the inflation rate can be used as a proxy for the growth of the economy and therefore as the perpetual growth rate of the firms' cash flows. DoorDash operates mainly in the US, where the Federal Reserve (FED) aims to keep inflation close to 2% in the long run, therefore, a growth rate of 2% will be assumed for the estimation of the terminal value. Moreover, to estimate the normalized free cash flows, it has been assumed that the variation of the net working capital is equal to zero and that the level of Capex is equal to D&A, such that the normalized FCFO is equal to the NOPAT of the same year. Given the assumptions explained above, the resulting financial model is the following.

Table 3.2

$m	2020	2021	2022	2023	2024	2025
EBITDA	- 56.00	216.62	610.41	1,158.68	1,733.38	2,431.07
D&A	118.67	163.96	231.01	292.34	328.01	368.02
EBIT	- 174.67	52.66	379.40	866.34	1,405.38	2,063.05
Tax	-	11.06	79.67	181.93	295.13	433.24
Nopat	- 174.67	41.60	299.72	684.41	1,110.25	1,629.81
D&A	118.67	163.96	231.01	292.34	328.01	368.02
Capex	159.00	253.93	357.77	452.74	507.98	368.02
Δ NWC	163.33 -	104.92	39.43	36.06	20.97	-
FCFO	**- 378.33**	**56.55**	**133.54**	**487.94**	**909.31**	**1,629.81**

Source: Own work.

Once obtained the forecasted FCFO, they have been discounted using the firm's WACC, obtaining an enterprise value (EV) of $31.25 billion. To the EV the net debt has been subtracted to identify the equity value of the firm equal to $31.83 billion. Finally, the share price has been identified dividing the equity value by the total shares outstanding. The share price of the firm under these assumptions is equal to $100.20, which is 1.76% less than the IPO price set at

[254] Source for Capex: Refinitiv Eikon database.

$102.00.

3.4.2 DoorDash Valuation: Relative valuation

Relative valuation techniques try to estimate the value of a company or an asset by looking at the market price of its comparable. In order to adjust for size, multiples are adopted. DoorDash operates in the online food delivery industry in the US, Canada, and Australia. Its direct competitors are Grubhub, Postmates, and Uber Eats. However, given the company's intention to pursue a geographic expansion strategy, as reported in the IPO prospectus, other potential competitors could be Just Eat Takeaway.com and Delivery Hero. Consistent with the information provided in the IPO document, the following platforms have been considered as comparable for the relative valuation: Grubhub, Just Eat Takeaway.com, Delivery Hero, and HelloFresh. In relative valuation, it is crucial to use multiples that have as a financial statistic a variable which is a value driver for the industry, and since DoorDash operates in the online food delivery industry, has negative income, and double-digit growth, the following ratios have been chosen: EV/Revenues, EV/EBITDA, EV/Daily orders, EV/Active consumers, and EV/Restaurants. While the first two ratios are common while performing relative valuation, the remaining three have been adopted due to the specific characteristics of the industry and the company, since most of the firms operating in the online food delivery industry have negative EBIT and earnings.

The following tables show the results for the different multiples adopted.

Table 3.3

FY 2020	EV/Revenues	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	3.91			
Delivery Hero	10.33			
Just Eat Takeaway.com	6.75			
HelloFresh	2.83			
median	5.33	13,616.37	14,197.37	44.69
average	5.96	15,213.04	15,794.04	49.72
max	10.33	26,389.71	26,970.71	84.91
min	2.83	7,229.71	7,810.71	24.59

Source: Own work (on Bloomberg data).

Table 3.4

FY 2021	EV/EBITDA	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	57.28			
Delivery Hero	N/A			
Just Eat Takeaway.com	171.68			
HelloFresh	23.91			
median	57.28	12,407.99	12,988.99	40.89
average	84.29	18,258.89	18,839.89	59.31
max	171.68	37,189.31	37,770.31	118.90
min	23.91	5,179.38	5,760.38	18.13

Source: Own work (on Bloomberg data).

Table 3.5

FY 2020	EV ($)	Daily orders	EV/Daily orders	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	745,000	9,547.11			
Delivery Hero	31,203,750,000	2,650,000	11,775.00			
Just Eat Takeaway.com	16,859,900,000	1,610,959	10,465.75			
HelloFresh	12,959,400,000	216,556	59,843.18			
median	14,909,650,000	1,177,979.50	11,120.38	22,057.95	22,638.95	71.27
average	17,033,912,500	1,305,628.75	22,907.76	45,438.94	46,019.94	144.87
max	31,203,750,000	2,650,000.00	59,843.18	118,702.60	119,283.60	375.51
min	7,112,600,000	216,556.00	9,547.11	18,937.28	19,518.28	61.44

Source: Own work (on publicly available information).

Table 3.6

FY 2020	EV ($)	Active consumers	EV/Active consumers	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	33,000,000	215.53			
Delivery Hero	31,203,750,000	20,000,000	1,560.19			
Just Eat Takeaway.com	16,859,900,000	60,000,000	281.00			
HelloFresh	12,959,400,000	5,000,000	2,591.88			
median	14,909,650,000	26,500,000.00	920.59	16,570.67	17,151.67	53.99
average	17,033,912,500	29,500,000.00	1,162.15	20,918.70	21,499.70	67.68
max	31,203,750,000	60,000,000.00	2,591.88	46,653.84	47,234.84	148.70
min	7,112,600,000	5,000,000.00	215.53	3,879.60	4,460.60	14.04

Source: Own work (on Bloomberg data).

Table 3.7

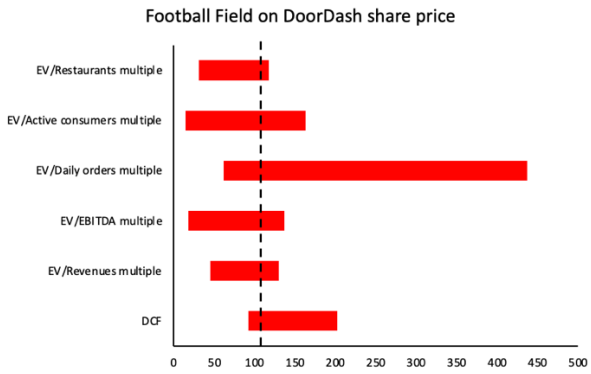
FY 2020	EV ($)	Restaurants	EV/Restaurants	DoorDash EV (m$)	DoorDash E (m$)	DoorDash Share Price ($)
Grubhub	7,112,600,000	300,000	23,708.67			
Delivery Hero	31,203,750,000	550,000	56,734.09			
Just Eat Takeaway.com	16,859,900,000	244,000	69,097.95			
median	16,859,900,000	300,000.00	56,734.09	22,126.30	22,707.30	71.48
average	18,392,083,333	364,666.67	49,846.90	19,440.29	20,021.29	63.03
max	31,203,750,000	550,000.00	69,097.95	26,948.20	27,529.20	86.66
min	7,112,600,000	244,000.00	23,708.67	9,246.38	9,827.38	30.94

Source: Own work (on Bloomberg data).

3.4.3 DoorDash Valuation: "Football field"

It is common to summarize the results from different valuation methodologies into a chart, which is referred as football field (see chart 3.1).

Chart 3.1



Source: Own work.

The black dotted line represents the IPO share price identified by the investment banks that worked on the IPO of DoorDash.

Conclusion

The spread of COVID-19 has reshaped people's habits and firms' businesses. As in every crisis, there are winners and losers, and while the pandemic has forced several companies to re-size or close their activities, others were able to gain and exploit the new challenging environment. Impressive has been the growth of the online food delivery industry, where platforms have been able to more than double their revenues. Among them, DoorDash's performance has been outstanding. Indeed, its revenues not only increased by c.a. 187% between 2019 and 2020, but the firm was also able to successfully get listed during the pandemic. The IPO share price established by investment banks has been $102.00, close to the estimation derived via the DCF model provided in this work. Different from other industries, estimate the market value of companies operating in the online food delivery industry is not straightforward, mainly because most service providers have not been able to generate profits yet. This uncertainty is reflected in financial markets as well, with extreme volatility affecting DoorDash's share price. Indeed, the close price of the first trading day was $160.00, +56.86% of the IPO share price, but at the end of December it was $142.75. In February 2021 the share price reached its historical highest of $215.16, but the lowest was achieved in May ($112.99).[255] The spread of the virus did not only increase the activity of online food delivery platforms in the short term, but it will also have, according to me, a long-run effect. Indeed, due to the pandemic, people were forced to order online to eat restaurants' meals, and several families and individuals tried the service for the first time, and it is very likely that a portion of those who were forced to use online food delivery platforms will continue to do so even after the pandemic. This is probably the reason why these service providers are trading at a high price compared to fundamentals, and for this reason they can be defined as growth stocks. However, it is important to highlight that despite the boost that COVID-19 had on platforms' activities and revenues, these firms are still generating losses, meaning that they still need to find best practices and the sector still requires time to become mature. For this reason, I expect the share price of firms in the online food delivery industry to be very volatile in the near future, and I believe consolidation processes will take place with several M&A deals.

[255] Based on data available until June 2021.