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The Direct Listing as an alternative to IPO and its effects on the underpricing phenomenon: the Coinbase Global case

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Introduction

Private businesses have been preparing to go public through IPOs for decades. Although that banker-led procedure has always been inefficient, businesses were forced to endure the high fees and money lost on the offering date because there were no viable alternatives. A number of people are now choosing direct listings as an alternative to the banker-led process, and others have started employing special purpose acquisition firms, particularly in the last two years (SPACs). These alternatives undoubtedly require development and are still works in progress, but change is on the way.

Driven by curiosity and the certainty that direct listing will be a topic that we will continue to hear more and more frequently, I decided to write my thesis on this topic with the goal of answering two questions: is direct listing in degrees posing itself as a viable alternative to the classic IPO? And then, is direct listing able to reduce the phenomenon of IPO-type underpricing?

In order to answer these questions, I structured my thesis into three chapters. In the first chapter I will analyze the mechanisms of the classic *Initial Public Offering*. Specifically, I will conduct a study to understand its process, actors, current regulation, and possible risks including underpricing and possible benefits.

The second chapter will deal specifically with *direct listing*, attempting to analyze it from all angles to see if it can indeed be considered an effective and efficient alternative to the classic IPO. In particular, I will study the mechanisms of its process and the related risks and benefits by comparing them with those of the IPO. Since it is a relatively new instrument, I will also focus on the U.S. regulations and the prerequisites required by the SEC to be eligible for this type of listing.

As the third and final chapter, I decided to study the case of listing through direct listing of Coinbase Global, which with tens of millions of users, it's one of the most popular cryptocurrency exchanges online. Through the application of the theory analyzed in the previous chapters, I will go on to evaluate the effectiveness of choosing to list through direct listing and comment on the results obtained. Instead, to understand the effects of direct listing on underpricing, I will conduct a valuation of Coinbase's stock to calculate the intrinsic value and compare the price obtained with the closing price on the first day of listing and draw my conclusions.

Chapter 1
The Initial Public Offering (IPO)

1.1 Going Public

Going public – offering shares for the first time to third-party investors – is probably one of the most important decisions that can be made during the life of a company. For shareholders of a family-owned business, it can provide a welcome source of liquidity for their holdings. But it also opens up their affairs to the scrutiny of outsiders. Through a flotation, entrepreneurial ventures can find an unparalleled source of capital to support their development. Investors buy Initial Public Offerings (IPOs) because they offer them the opportunity to build a sizeable position in a stock, something that would in most cases be more costly and take a long time to achieve in the secondary market. Most companies coming to market for the first time also exhibit some form of IPO discount, which makes them more attractive relative to their listed peers (Epinasse, 2022).

Four main reasons explain why a company's shares should be listed:

1. *To raise expansion capital*: a company that wants to grow and further support its development is often limited by its cash flow. The public market can provide the company with the financial resources necessary to support its growth plan. The main difference between debt and equity is that the latter does not have to be repaid.
2. *To monetize the investments of early private investors*: listing a company's shares provides, for shareholders, a secure exit strategy. The Italian economy consists mainly of small and medium enterprises managed by families. Now, let's assume that some family members would like to monetize and exit from their investments. When the company is private, its options are limited and it's difficult to find investors willing to buy private shares. This may push shareholders to sell their shares at a price that would be lower than their fair value. By listing the shares, the company will appeal to a wider audience of potential investors, which effectively facilitates the exit of the primary shareholders.
3. *Discipline in the management of the company*: anything relating to reporting, communication, and transparency is greatly enhanced through listing. The

company is forced to follow some rules and therefore this would inject more discipline and rigor into the management of the company.

4. *Traded currency*: once the company is listed, it would have a so-called *traded currency*. While a private company that wants to undertake an acquisition is almost forced to pay for it with cash because a very limited number of counterparts would accept to have an equity stake in a private company since they will then have no real ability to exit their investments (there would be an illiquid kind of currency). On the other hand, once the company is listed, this would allow it to use its stock as a currency to acquire other companies or groups.

IPO is the most common way for a company to go public, but let's go more in deep to understand the characteristics of this particular operation.

1.2 What is an IPO

The initial public offering (or IPO) is the instrument through which a company obtains the dissemination of securities among the public (the so-called creation of the free float), which is a requirement for obtaining the listing of its securities on a regulated market.

Since the IPO is addressed to the indistinct public of investors, it constitutes a case of solicitation of investment, so the issuing company must organize the operation taking care to observe the regulations of the Consolidated Law on Finance (Legislative Decree 58/1998) aimed at ensuring transparent information to the recipients of the offer.

The company that intends to carry out an IPO must give prior notice to Consob specifying all the features of the offer, listing all the parties that will take part in the operation, and indicating the role of each. At the same time, the company must prepare the Prospectus according to the format specified by Consob itself.

The IPO is a complex operation that can ideally be divided into several stages each of which involves different parties and is aimed at achieving specific objectives.

The parties involved in the transaction are the issuing company, the global coordinator, the sponsor, the specialist, the financial advisor, the law firms, and the members of the placement consortium.

The IPO procedure takes place over a time frame of 4 to 6 months within which the phases of planning, due diligence, drafting of the prospectus and mandatory listing documents, admission to listing, the establishment of the placement consortium, marketing activities, road show, book building, actual placement and subsequent trading alternate (Borsa Italiana, s.d.).

1.2.1 Players involved in the IPO process

In Italy, IPOs are regulated by the Italian Securities Act and its implementing measures, also in compliance with the applicable European legislation on the matter which includes several provisions concerning process and transparency. The *involved authorities* in the Italian IPO process are:

- *Italian Securities and Exchange Commission (CONSOB)*: it is the authority responsible for ensuring market transparency, ordinary trading management, and investors' protection. Therefore, CONSOB is responsible for reviewing the listing prospectus to ensure that the information provided therein is complete, comprehensible, and accurate in all material respects, and monitors that the IPO process is carried out in compliance with the applicable rules.
- *Italian Stock Exchange (Borsa Italiana S.p.A)*: it is a private company currently belonging to the London Stock Exchange Group which, based on the powers attributed by CONSOB, manages the Italian Stock Exchange by the Italian Securities Act and Regulation (EU) No. 600/2014. Borsa Italiana establishes the relevant listing requirements and verifies the issuers' compliance with them by carrying out its monitoring cities (Sacco Ginevri, 2021).

The players above mentioned managing the IPO process from a regulation point of view. Then we have others players involved who follow the company during all the phases of its listing and make it possible. These players are:

- *Sponsor*: it is a domestic, EU, or non-EU bank or investment firm with proven experience in primary capital market operations. The sponsor is responsible for accompanying an issuing company through the process of listing and trading financial instruments to ensure their orderly conduct. The presence of the sponsor is mandatory if:

- when the issuer intends to apply for admission to the listing of financial instruments to ensure its orderly conduct.
- Borsa Italiana requires it as a result of serious violations of Stock Exchange regulations or other applicable regulations or disciplines.

In the case of a merger between listed companies, however, the sponsor is not required. The sponsor assumes assurance roles on the data about the issuer that it learns during the listing process, on the issuer's management's awareness of its obligations and responsibilities on the forecast data. The sponsor also performs some post-listing functions; in fact, it must undertake to publish or have third parties prepare at least two financial analyses on the company per year, as well as to organize meetings between the company's management and the financial community at least twice a year. (Borsa Italiana, s.d.).

- *Global coordinator*: The role of global coordinator can be carried out by investment banks, Italian or foreign, authorized to carry out placement services under the Consolidated Banking Act (Legislative Decree 385/1993) or by any other financial intermediary included in the special list of Article 107 of the Consolidated Banking Act.

  The global coordinator's activity begins with conducting a feasibility study of the transaction to decide whether or not to go ahead with it. If so, the global coordinator subsequently carries out, in collaboration with the lawyers, auditors, and advisors, the Due Diligence activity; in addition, he or she is in charge of managing the relationships between the issuer, the market management company (Borsa Italiana) and the supervisory authority (Consob), possibly also assuming the function of Sponsor.

  Given his coordinating role, the global coordinator is present at all stages of the transaction, from the establishment of the placement and guarantee consortia to the preparation of the prospectus, pre-marketing, organization of road shows, book building, determination of the offering price as well as stabilization of the stock on the market in the post-listing period (Borsa Italiana, s.d.).
- *Financial advisor*: it offers advisory services to parties involved in an extraordinary finance transaction, such as in the preparation of a public offering aimed at listing. The presence of the advisor is particularly

necessary in cases where the company, due to the complexity and/or size of the transaction, is unable to independently follow all stages of the listing (Borsa Italiana, s.d.).

- *Auditing firm*: it is responsible for ascertaining the clarity, truthfulness, and accuracy of the company's financial statement. The auditing firm is also responsible for writing and issuing the comfort letter regarding the prospectus.
- *Legal advisors*: they are chosen by the company or the global coordinator. They have to advise the company on statutory adjustments, assist the company in drafting the by-law, assist the company in drafting the prospectus, and give professional opinions on everything related to the world of contracts. Specifically, they are required to work with the company in drafting the company contract in drafting the underwriting contract and give a legal opinion.
- *Communication consultants* are those advisors who act during the marketing phase. They are crucial because the company, to make itself known to the investing public, must have a clear communication strategy that highlights the company's strengths and potential value.

It is important to note that each company is different from others. For this reason, each IPO process may require other players depending on the business or complexity of the company. The important thing is to ensure transparency and completeness of data so that potential investors are aware and can make sound and reasonable decisions.

1.3 The IPO process

The IPO process is structured into several steps and activities. As we can see from Figure 1.1, the IPO process is divided into two macro-phases: the private and the public phase.

Businesses often begin their preparations for becoming public companies well before they launch the IPO process. Typically, pre-IPO preparations take four to six months, but they can take considerably longer. Preparation is a key success factor that allows for a smooth and efficient execution process and the ability to take advantage of market windows. This is the pre-IPO preparation and, during this phase, a company should guarantee:

- *Management team*: it should be prepared to explain the business, its strategy, and prospects to investors, and demonstrate knowledge of the sector, as well as its challenges, to gain the support and confidence of the market.
- *Business plan*: for an IPO, a company needs a comprehensive business plan that sets out its products, markets, competitive environment, strategy, capabilities, and growth objectives.
- *Financial performance*: a company should expect to show investors a consistent pattern of top-and-bottom-line growth and a sound balance sheet post-IPO.
- *Controlling shareholders*: potential investors may be influenced, negatively or positively, by the presence of a controlling shareholder. The company should foresee the possible effects on him and manage the consequences.
- *Board*: A public company needs to satisfy corporate governance requirements. It is typically necessary to appoint new members to the board who are independent and to form new committees.

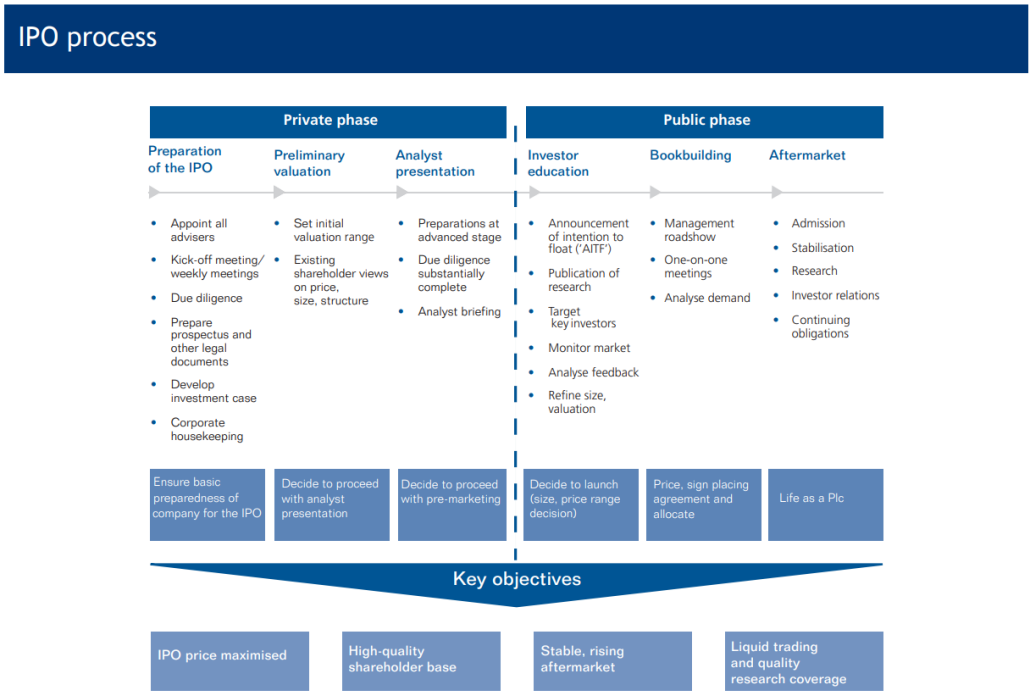

Figure 1.1: IPO Process. Source: (London Stock Exchange, 2010)

Once the company has managed to meet these minimum prerequisites, it can be said to be ready to start the first phase of the IPO process, the private phase (London Stock Exchange, 2010).

1.3.1 The private phase

1. Preparation of the IPO

At this stage, the company begins to take care of all preparatory activities. First, it will have to appoint its advisors, start holding regular meetings (kick-off meetings/weekly meetings), support its advisors throughout due diligence, and start preparing the prospectus and all legal documentation. Next, he will need to start developing the marketing messaging for the IPO which consists of preparing the so-called investment case (the reasons why a public investor should buy that company) and then organizing the so-called corporate "housekeeping." This last activity is extremely important: it consists of tidying up the company in terms of reporting, accounting, and compliance. The company has to do whatever is necessary to be compliant with current regulations). In short, the company must make sure it is ready to face the public market.

At this stage, the company will not make any public announcement about its intention to go public. The so-called ITF (Intention To Float) will take place at the end of this private phase.

2. Preliminary valuation

During this stage, the company asks its consultants to submit a preliminary valuation. The preliminary valuation is an estimate that is based on the information the company has provided to its consultants and their understanding of the public market.

Any entrepreneur, controlling shareholder, and even private equity may have their ideal valuation of the company. They have their expectations in terms of valuation, but you need to compare them with what the market is willing to pay. This is a process that will be refined during the IPO process, but the company should have at least a broad, common understanding and vision of the valuation before proceeding. Accordingly, the initial valuation range and shareholders' views on price, size, and structure will be established at this stage. If the valuation made by the entrepreneur differs greatly from that of the market, the IPO process will probably end at this stage.

3. Analyst presentation

At this stage, preparations are at an advanced stage and due diligence is completed.

The analyst presentation is a fairly detailed presentation that the company will make to the research analysts at the investment banks (analyst briefing), who will then issue a report on the company during the public stage. The presentation will lead to the publication of reports by these investment banks that will begin to give guidance to the market on the potential value and price of the IPO, or at least on a range (if the company decides to proceed with the pre-marketing phase).

Therefore, before listing as an issuer, the company must be comfortable with the guidance that analysts will give investors. If there is a fundamental divergence of opinion, the company will stop publishing the research and stop the IPO at this point. Instead, if things go as planned, and so in principle, the company agrees with what the analysts are willing to publish, the company may give the go-ahead for publication.

If the company agrees to publication, the IPO process proceeds to the *Public Phase*.

1.3.2 The public phase

4. Investor Education

During this stage, the company publicly announces its intention to float (so-called "AITF," which is now mostly known as "ITF" or "Intention To Float") and allows the research report to be published. This means that the research report will stop being private and become public and available for the investment community. The company will have to reach out to its key investors and start managing the relationship with them. It will monitor the market and analyze the feedback. Through these initial marketing stages, the company will also try to narrow the valuation range a bit to give investors more certainty about the price.

At the end of this phase, the company will decide to launch the size, price, and range.

5. The book-building exercise

Book building is the process by which an underwriter attempts to determine the price at which an initial public offering (IPO) will be offered. Book building has surpassed the 'fixed pricing' method, where the price is set before investor

participation, to become the de facto mechanism by which companies price their IPOs.

The book-building process comprises these steps:

1. The issuing company hires an investment bank to act as an underwriter who is tasked with determining the price range the security can be sold for and drafting a prospectus to send out to the institutional investing community.
2. The investment bank invites investors, normally large-scale buyers and fund managers, to submit bids on the number of shares that they are interested in buying and the prices that they would be willing to pay.
3. The book is 'built' by listing and evaluating the aggregated demand for the issue from the submitted bids. The underwriter analyses the information and uses a weighted average to arrive at the final price for the security, which is termed the cut-off price.
4. The underwriter has to, for the sake of transparency, publicize the details of all the bids that were submitted.
5. Shares are allocated to the accepted bidders (Investopedia, 2020).

6. Aftermarket

In this phase, the stock start trading, and the company would have a so-called stabilization period. In other words, in this phase, there are admission, stabilization, research, investor relations, and the continuing ongoing obligations relating to the IPO. In a developed market, this process would require between four and six months. Figure 1.2 shows the common IPO timeline:

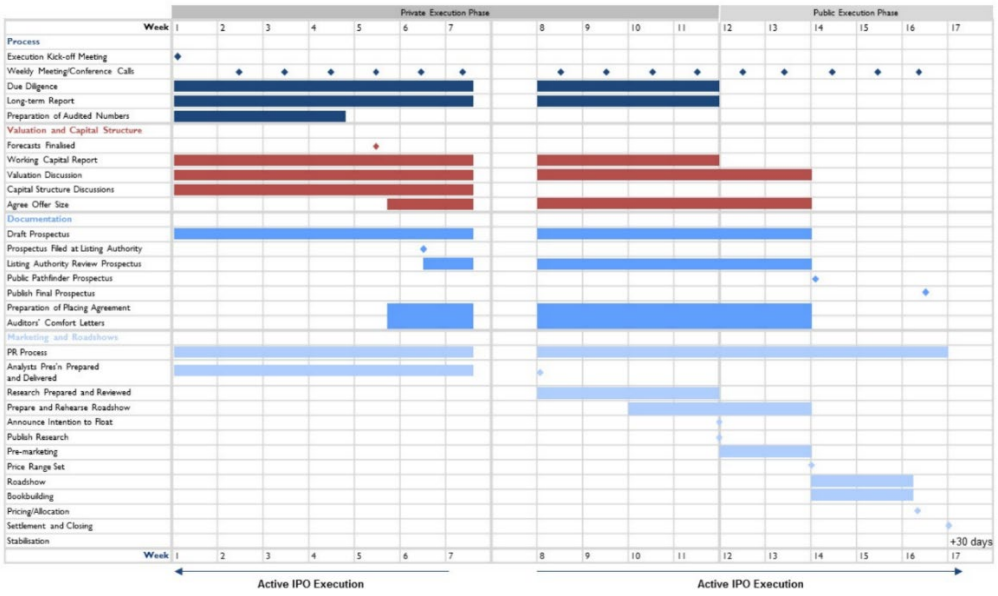

Figure 1.2: IPO Timeline. Source: (London Stock Exchange, 2010)

The exact timetable will vary depending on market conditions, the scope and complexity of the deal, and a range of other factors.

1.4 Valuation methodologies

Every player involved, from the investment bank to the private investor, in the IPO, must have an idea about the potential value of the company that intends to list. In this section, we will want to outline the main methodologies that enable the interested party to give a likely value to the company. We can divide the valuation methodologies into "Primary valuation methodologies" and "Secondary or Supporting valuation methodologies".

1.4.1 Primary valuation methodology

In an IPO transaction, there are fewer fundamental valuations than the one you would have in an M&A transaction. The most relevant metric is the *"Comparable Quoted Companies Analysis"*.

In the method of comparables, we estimate the value of the firm based on the value of other, comparable firms or investments that we expect will generate very similar cash flows in the future. For example, consider the case of a new firm that is identical to an existing publicly traded company. If these firms will generate identical cash flows, the Law of One Price implies that we can use the value of the existing company to determine the value of the new firm. Of course, identical companies do not exist. Although they may be similar in many respects, even two firms in the same industry selling the same types of products are likely to be of a different size or scale (Jonathan Berk, 2017).

We have already anticipated one of the limitations of this evaluation methodology, namely the problem of comparing companies with similar businesses but different sizes. We can adjust for differences in scale between firms by expressing their value in terms of a *valuation multiple*, which is a ratio of the value to some measure of the firm's scale.

The Price-Earnings Ratio (P/E)

The most commonly used multiple is undoubtedly the price-to-earnings ratio. the P/E of a company is given by the ratio of its stock price to its earnings per share. the rationale behind this multiple is very simple: by buying shares in a company, you get the right to enjoy the earnings per share that the company manages to

produce. Because differences in the scale of firms' earnings are likely to persist, you should be willing to pay proportionally more for a stock with higher current earnings. Thus, we can estimate the value of a firm's share by multiplying its current earnings per share by the average P/E ratio of comparable firms.

To interpret the P/E multiple, consider the stock price formula for the case of constant dividend growth: $P_0 = Div_1/EPS_1$. If we divide both sides of this equation by EPS_1, we have the following formula:

$$Forward\ P/E = \frac{P_0}{EPS_1} = \frac{Div_1/EPS_1}{r_E - g} = \frac{Dividend\ payout\ rate}{r_E - g}$$

This is the formula for the firm's forward P/E, which is the P/E multiple computed based on its forward earnings (expected earnings over the next twelve months). We can also compute a firm's *trailing P/E ratio* using trailing earnings (earnings over the prior 12 months). For valuation purposes, the forward P/E is generally preferred, as we are most concerned about future earnings.

This formula implies that if two stocks have the same payout and EPS growth rates, as well as equivalent risk (and therefore the same equity cost of capital), then they should have the same P/E. It also shows that firms and industries with high growth rates, and that generate cash well over their investment needs so that they can maintain high payout rates, should have high P/E multiples (Jonathan Berk, 2017).

The Enterprise Value Multiples

It is also common practice to use valuation multiples based on the firm's enterprise value. Because it represents the total value of the firm's underlying business rather than just the value of equity, using the enterprise value is advantageous if we want to compare firms with different amounts of leverage.

Because the enterprise value represents the entire value of the firm before the firm pays its debt, to form an appropriate multiple, we divide it by a measure of earnings or cash flows before interest payments are made. Common multiples to consider are enterprise value to EBIT, EBITDA (earnings before interest, taxes, depreciation, and amortization), and free cash flow. However, because capital expenditures can vary substantially from period to period (e.g., a firm may need to add capacity and build a new plant one year, but then not need to expand further for many years), most practitioners rely on enterprise value to EBITDA multiples. If expected free cash flow growth is constant, then:

$$\frac{EV_0}{EBITDA_1} = \frac{FCF_1/EBITDA_1}{r_{WACC} - g_{FCF}}$$

As with the P/E multiple, this multiple is higher for firms with high growth rates and low capital requirements (so that free cash flow is high in proportion to EBITDA) (Jonathan Berk, 2017).

Other multiples

Many other valuation multiples are possible. Looking at enterprise value as a multiple of sales can be useful if it is reasonable to assume that the firms will maintain similar margins in the future. For firms with substantial tangible assets, the ratio of price to book value of equity per share is sometimes used. Some multiples are specific to an industry (Jonathan Berk, 2017).

Pros and Cons of multiple analysis

If comparable firms were identical, their multiples would match precisely. Of course, firms are not identical. Thus, the usefulness of a valuation multiple will depend on the nature of the differences between firms and the sensitivity of the multiples to these differences.

Investors in the market understand that these differences exist, so the stocks are priced accordingly. But when valuing a firm using multiples, there is no clear guidance about how to adjust for these differences other than by narrowing the set of comparables used. Thus, a key shortcoming of the comparables approach is that it does not take into account the important differences among firms. One firm might have an exceptional management team, another might have developed an efficient manufacturing process, or secured a patent on a new technology. Such differences are ignored when we apply a valuation multiple.

Another limitation of comparables is that they only provide information regarding the value of the firm relative to the other firms in the comparison set. Using multiples will not help us determine if an entire industry is overvalued, for example. This issue became especially important during the Internet boom of the late 1990s. Because many of these firms did not have positive cash flows or earnings, new multiples were created to value them (e.g., price to “page views”). While these multiples could justify the value of these firms about one another, it was much more difficult to justify the stock prices of many of these firms using a realistic estimate of cash flows and the discounted free cash flow approach.

Figure 1.3 shows all the equity multiples with their advantages and disadvantages, while in Figure 1.4 we can see the enterprise value multiples with their advantages and disadvantages too:

Equity Value Multiples

Multiple	Definition	Advantages	Disadvantages
P/E ratio	▸ Share price / Earnings per share (EPS) EPS is net income/weighted average no of shares in issue ▸ EPS may be adjusted to eliminate exceptional items (core EPS) and/or outstanding dilutive elements (fully diluted EPS)	▲ Most commonly used equity multiple ▲ Data availability is high	▼ EPS can be subject to differences in accounting policies and manipulation ▼ Unless adjusted, can be subject to one-off exceptional items ▼ Cannot be used if earnings are negative
Price / cash earnings	▸ Share price / earnings per share plus depreciation amortization and changes in non-cash provisions.	▲ Cash earnings are a rough measure of cash flow ▲ Unaffected by differences in accounting for depreciation	▼ Incomplete treatment of cash flow ▼ Usually used as a supplement to other measures if accounting differences are material
Price / book ratio	▸ Share price / book value per share.	▲ Can be useful where assets are a core driver of earnings such as capital-intensive industries ▲ Most widely used in valuing financial companies, such as banks, which rely on a large asset base to generate profits	▼ Book values for tangible assets are stated at historical cost, which is not a reliable indicator of economic value ▼ Book value for tangible assets can be significantly impacted by differences in accounting policies
PEG ratio	▸ Prospective PE ratio / prospective average earnings growth.	▲ Most suitable when valuing high growth companies	▼ Requires credible forecasts of growth ▼ Can understate the higher risk associated with many high-growth stocks
Dividend yield	▸ Dividend per share / share price.	▲ Useful for comparing cash returns with types of investments ▲ Can be used to establish a floor price for a stock	▼ Dependent on distribution policy of the company ▼ Yield to investor is subject to differences in taxation between jurisdictions ▼ Assumes the dividend is sustainable
Price / Sales	▸ Share price / sales per share.	▲ Easy to calculate ▲ Can be applied to loss making firms ▲ Less susceptible to accounting differences than other measures	▼ Mismatch between nominator and denominator in formula (EV/Sales is a more appropriate measure) ▼ Not used except in very broad, quick approximations

Figure 1.3: Equity Value Multiples. Source: Personal Source

Enterprise Value Multiples

Multiple	Definition	Advantages	Disadvantages
EV/Sales	▸ Enterprise value / net sales	▲ Least susceptible to accounting differences ▲ Remains applicable even when earnings are negative or highly cyclical	▼ A crude measure as sales are rarely a direct value driver
EV/EBITDAR	▸ Enterprise value / Earnings before Interest, Tax, Depreciation & Amortization and Rental Costs	▲ Proxy for operating free cash flows ▲ Attempts to normalize capital intensity between companies that choose to rent rather than own their core assets ▲ Most often used in the transport, hotel and retail industries	▼ Rental costs may not be reported and need to be estimated ▼ Ignores variations in capital expenditure and depreciation ▼ Ignores value creation through tax management
EV/EBITDA	▸ Enterprise value / Earnings before Interest, Tax, Depreciation & Amortization. Also excludes movements in non-cash provisions and exceptional items	▲ EBITDA is a proxy for free cash flows ▲ Probably the most popular of the EV based multiples ▲ Unaffected by depreciation policy	▼ Ignores variations in capital expenditure and depreciation ▼ Ignores potential value creation through tax management
EV/EBIT and EV/EBITA	▸ Enterprise value / Earnings before interest and taxes (and Amortisation)	▲ Better allows for differences in capital intensiveness compared to EBITDA by incorporating maintenance capital expenditure	▼ Susceptible to differences in depreciation policy ▼ Ignores potential value creation through tax management
EV/NOPLAT	▸ Enterprise value / Net Operating Profit After Adjusted Tax	▲ NOPLAT incorporates a number of adjustments to better reflect operating profitability	▼ NOPLAT adjustments can be complicated and are not applied consistently by different analysts
EV/opFCF	▸ Enterprise value / Operating Free Cash FlowOpFCF is core EBITDA less estimated normative capital expenditure requirement and estimated normative variation in working capital requirement	▲ Better allows for differences in capital intensiveness compared to EBITDA ▲ Less susceptible to accounting differences than EBIT ▲ Use of estimates allows for smoothing of irregular real capital expenditures	▼ Introduces additional subjectivity in estimates of capital expenditure
EV/ Enterprise FCF	▸ Enterprise value / Free cash flowEnterprise FCF is core EBITDA less actual capital expenditure requirement and actual increase in working capital requirement	▲ Less subjective than opFCF ▲ Better allows for differences in capital intensiveness compared to EBITDA ▲ Less susceptible to accounting differences than EBIT	▼ Can be volatile and difficult to interpret as capital expenditure is often irregular and "lumpy"
EV/Invested Capital	▸ Enterprise value / Invested capital	▲ Can be useful where assets are a core driver of earnings, such as for capital-intensive industries	▼ Book values for tangible assets are stated at historical cost, which is not a reliable indicator of economic value ▼ Book value for tangible assets can be significantly impacted by differences in accounting policies
EV/Capacity Measure	▸ Depends on industry (e.g. EV/subscribers, EV/production capacity, EV/audience)	▲ Not susceptible to accounting differences ▲ Remains applicable even when earnings are negative or highly cyclical	▼ A crude measure as capacity measures are rarely a direct value driver

Figure 1.4: Enterprise Value Multiples. Source: Personal Source

1.4.2 Secondary or Supporting valuation methodology

These valuation methodologies are the most analytical ones, and they are often used to understand whether the comparative analysis that we have previously performed is not completely wrong. These methodologies are extremely important especially when it is not possible to find comparable companies to evaluate with multiples.

Discounted Free-Cash-Flow Method (DFCF)

The Discounted Free-Cash-Flow method begins by determining the total value of the firm to all investors—both equity and debt holders. That is, we begin by estimating the firm's enterprise value, which we defined as:

$$Enterpise\ Value = Market\ Value\ of\ Equity + Debt - Cash$$

The enterprise value is the value of the firm's underlying business, unencumbered by debt and separate from any cash or marketable securities. We can interpret the enterprise value as the net cost of acquiring the firm's equity, taking its cash, paying off all debt, and thus owning the unlevered business. The advantage of the discounted free cash flow model is that it allows us to value a firm without explicitly forecasting its dividends, share repurchases, or its use of debt.

To estimate the value of the firm's equity, we computed the present value of the firm's total payouts to equity holders. Likewise, to estimate a firm's enterprise value, we compute the present value of the free cash flow (FCF) that the firm has available to pay all investors, both debt and equity holders. We saw how to compute the free cash flow for a project in Chapter 8; we now perform the same calculation for the entire firm:

$$Free\ Cash\ Flow = Unlevered\ Net\ Income - Net\ Investment - Increase\ in\ NWC$$

Where:

$$Unlevered\ Net\ Income = EBIT\ x\ (1 - \tau_C)$$

$$Net\ Investment = Capital\ Expenditure - Depreciation\ \&\ Amortiaztion\text{k}$$

Free cash flow measures the cash generated by the firm before any payments to debt or equity holders are considered.

Thus, just as we determine the value of a project by calculating the NPV of the project's free cash flow, we estimate a firm's current enterprise value V_0 by computing the present value of the firm's free cash flow:

$$V_0 = PV\ (Present\ Value\ of\ Future\ FCF\ of\ Firm)$$

Given the enterprise value, we can estimate the share price by using the above mentioned equation to solve for the value of equity and then divide by the total number of shares outstanding:

$$P_0 = \frac{V_0 + Cash_0 - Debt_0}{Shares\ Outstanding_0}$$

One of the features of this model is the discount rate that is used. Because we are discounting the free cash flow that will be paid to both debt and equity holders. Thus, we should use the firm's weighted average cost of capital (WACC), denoted by r_{wacc}, which is the average cost of capital the firm must pay to all of its investors, both debt and equity holders. If the firm has no debt, then $r_{wacc} = r_E$. But when a firm has debt, r_{wacc} is an average of the firm's debt and equity cost of capital. In that case, because debt is generally less risky than equity, r_{wacc} is generally less than r_E. We can also interpret the WACC as reflecting the average risk of all of the firm's investments.

$$r_{WACC} = \frac{E}{E+D} r_E + \frac{D}{E+D} r_D (1 - \tau_C)$$

Given the firm's weighted average cost of capital, we implement the discounted free cash flow model in much the same way as we did the dividend-discount model. That is, we forecast the firm's free cash flow up to some horizon, together with a terminal (continuation) value of the enterprise:

$$V_0 = \frac{FCF_1}{1 + r_{WACC}} + \frac{FCF_2}{(1 + r_{WACC})^2} + \cdots + \frac{FCF_N}{(1 + r_{WACC})^N}$$

Often, the terminal value is estimated by assuming a constant long-run growth rate g_{FCF} for free cash flows beyond year N, so that:

$$V_N = \frac{FCF_{N+1}}{r_{WACC} - g_{FCF}} = \left(\frac{1 + g_{FCF}}{r_{WACC} - g_{FCF}}\right) FCF_N$$

The long-run growth rate g_{FCF} is typically based on the expected long-run growth rate of the firm's revenues (Jonathan Berk, 2017).

Comparison with Comparable Analysis

Using a valuation multiple based on comparables is best viewed as a "shortcut" to the discounted cash flow methods of valuation. Rather than separately estimate the firm's cost of capital and future earnings or free cash flows, we rely on the market's assessment of the value of other firms with similar prospects. In addition to its simplicity, the multiples approach has the advantage of being based on actual prices of real firms, rather than what may be unrealistic forecasts of future cash flows.

On the other hand, discounted cash flow (DCF) methods have the advantage that they allow us to incorporate specific information about the firm's profitability, cost

of capital, or future growth potential, as well as perform sensitivity analysis. Because the true driver of value for any firm is its ability to generate cash flows for its investors, discounted cash flow methods have the potential to be more accurate and insightful than the use of a valuation multiple. In particular, DCF methods make explicit the future performance the firm must achieve to justify its current value (Jonathan Berk, 2017).

1.5 IPO pricing methods

In the previous paragraphs, we looked at the IPO process in its stages and the valuation techniques used by players. In this paragraph, however, we will go deeper into one of the crucial phases of the whole IPO process: the price creation phase.

For international investment banks, the ability of pricing is the most important. There are three methods for IPO pricing: auction, fixed-price and, book-building, while being different in information extraction, stock allocation, under-pricing, etc., and all have dominances and flaws. Among them, book-building has been more and more popular for its prominent mechanisms, but it is also criticized owing to its deficiencies such as the aggravation of " the winner's cure" owing to the differential allocation, institutional collusion, investment bank's lack of competition and IPO information noise as well as comparative high costs comparing to other methods (Xie Shengfeng, 2010).

1.5.1 Auction

IPO auctions are like what happens at Sotheby's or on eBay: the winner bids above the equilibrium price. The difference is that in the auctions at Sotheby's or on eBay, the winning bidder is the one who offers the highest price, and the price is whatever that person's final bid is. This is not necessarily the case for IPOs. Two types of IPO auctions are used in the world: single-price and discriminatory auctions. In a single-price auction, also called a uniform-price auction, all winning bidders pay the lowest price regardless of the prices they bid. This is the mechanism used more often for IPOs. In a discriminatory auction, winning bidders pay the amount they bid. This mechanism, often called a Dutch auction, is used in many countries for selling government bonds. In both types of auctions, neither the issuer nor the underwriters can choose either the stock's price or its investors. Both the price and the winning investors result from the mechanism itself: the auction

process is very perfunctory. The underwriting banks play very little role in the process, and it cannot be suspected of favoring one side or the other.

In France, the traditional IPO mechanism was, until the 1990s, a single-price auction managed by the exchange (the Paris Bourse), l'offre à prix minimal. For this type of offering, the company and the issuing bank indicated the number of shares offered to the market and the minimum price, or floor price. When placing an order, the investor had to indicate the number of shares wanted and the price range for acquiring them. The Paris Bourse centralized all the orders and ranked them by price. The exchange then could eliminate extreme orders to establish a price range within which most of the demand fell. The gap in price between the two ends of the range had to be at least 5 percent. All orders with prices within this range were executed at prices corresponding to the low end of the range, but not necessarily for 100 percent of the amount desired. The orders could be executed in part if there was more demand than the number of shares offered. In this case, the Paris Bourse applied a pro-rata allocation percentage. In a pro-rata allocation, a successful bidder receives a quantity of shares equal to this allocation percentage multiplied by the number of shares the bidder demanded. The pro-rata allocation percentage is found by dividing the number of shares offered by the number of shares demanded, but it might also significantly differ from this average; for example, the higher the price of the bid, the higher is the pro-rata allocation percentage the Paris Bourse applied. There was therefore an incentive to bid high in this system (Michel Fleuriet, 2019).

1.5.2 Fixed-price

In a fixed-price offering, the firm indicates the number of shares it is putting on the market and the proposed price, without any consideration for the demand. Any interested investor indicates to his bank the number of shares he wishes to purchase at that price. The French used this mechanism for a long time under the name offre à prix fixe (OPF). In the OPF, buy orders were transmitted by the underwriters to the Paris Bourse and centralized. If the number of shares demanded exceeded the number of shares offered, the exchange, together with the firm and the underwriters, decided on a pro-rata allocation percentage.

Given the lack of consideration of demand in this process, it should come as no surprise that this mechanism tended to result in a high level of underpricing, which,

in turn, generated inflated orders because of the pro-rata allocation system. This mechanism is almost never used now.

The French still employ a fixed-price offering, but within a book building. The process starts with a book building for institutional investors. Trading does not start immediately after price setting because there is a fixed-price offering for retail investors that lasts for five days or more. The private investors can buy the offered stock at the price of the book building or at a discount to this price. True, the underwriters are at risk during the five days of the fixed-price offering, but this mixed system could be a good strategy for IBs to consider because it allows small investors to participate in the IPO. This process is used not only in France but also in other countries such as China (Michel Fleuriet, 2019).

1.5.3 Book-building

Book building offers greater flexibility than either auction or fixed-price offering. The price can be adjusted during the building of the book, and shareholders can be chosen via discretionary allocation of shares in a bought deal. In a bought deal (or underwritten issue or firm-commitment transaction) the underwriter guarantees the proceeds and will buy the securities if there are not enough investors at the offering price. It is called a bought deal because the issuer sells its securities outright to the underwriter, which then resells the securities to investors and will take up the securities eventually left over. Alternatively, the company can decide to sell its shares directly on the public markets without the help of underwriters, what we call a direct public offering (DPO). In some cases, banks agree only to do their best to sell shares to the public; this is called a best-efforts underwriting or a standby agreement. Best-efforts underwritings are more common for IPOs than for secondary offerings and more common still for very small IPOs. The book-building process reduces the underwriters' risks by allowing them to test the demand through the advance gathering of indications of interest. There is a premarketing phase, a road show, during which underwriters gather indications of interest from would-be investors—how many shares they would be interested in purchasing and at what price. The final price and allocation of IPO shares will depend on the responses received during the premarketing phase (Michel Fleuriet, 2019).

1.6 The underpricing phenomenon

The underpricing is a typical phenomenon in IPOs that occurs when the placement price is lower than the market price of the securities at the time of listing (Borsa Italiana, s.d.).

On average, shares seem to be offered at a price lower than the market price. Underpricing is usually estimated as the percentage difference between the price at which the shares were sold to investors during the offering period and the price at which the shares trade afterwards in the secondary market. Underpricing of IPOs has been empirically researched for more than 40 countries and the results indicate that underpricing of IPOs occurs worldwide (Peter-Jan Engelen, 2010).

1.6.1 Why we have underpricing in IPOs

Different researchers have advanced different models trying to explain the underpricing of IPOs. The winner's curse model of Rock (1986) assumes underpricing to be necessary because of asymmetric information between investors. Some investors have better information available about the value of the firm than others. The uninformed investors buy new shares of every IPO, while the informed investors only subscribe to shares of attractive IPOs. As the number of shares issued by a firm is limited, attractive shares will be oversubscribed. Therefore, uninformed investors will receive the full supply of unattractive IPOs and only a part of the attractive IPOs. In this way uninformed investors get an expected return below the average underpricing, or even a negative return (Ritter and Welch, 2002).
With negative expected returns, uninformed investors would not bid for any IPO allocation anymore. Rock assumes that the IPO market needs the demand of the uninformed investors, as the demand of informed investors alone is insufficient for its existence. Uninformed investors only invest in IPOs when they expect a positive return (or at least break even), so underpricing is needed on average (Ljungq-vist, 2007).

Beatty and Ritter (1986) extend this model by showing that the level of underpricing increases with the degree of ex ante uncertainty about the value of the firm. This implication is tested empirically, and the results confirm this relationship (Beatty and Zajac,1994; Welbourne and Cyr, 1999). Firms with more uncertainty about growth opportunities, for example, on average have higher levels of underpricing than other firms (Ritter, 1984). It is now widely accepted in the

literature that ex ante uncertainty is at the heart of the IPO process and that higher uncertainty leads to higher underpricing (Ljungqvist, 2007).

A similar conclusion is reached by the so-called principal/agent IPO models which focus on the asymmetric information between underwriters and issuers (Baron and Holmstrom, 1980; Baron, 1982). Higher ex ante uncertainty about the value of the firm leads to more informational asymmetry between underwriters and issuers, which in turn leads to more underpricing.

Although the Rock model assumes a fixed pricing offer with pro-rata allocation rules, the model predicts lower underpricing if information is distributed more homogeneously across investors (Michaely and Shaw, 1994). One solution is to switch to a different introduction method than fixed price offers.

There exist different methods to go public. The most commonly used introduction methods are fixed price offers, book building, auctions and hybrid offers. Fixed price offers set the offer price after which investors can submit their orders at the predetermined price. Book building is an introduction method where investors submit non-binding orders and underwriters use these indications to set the offer price. In an auction, investors submit binding orders (a certain number of shares at a certain offer price) after which an auction pricing mechanism assign the shares. Finally, hybrid offerings are a combination of the three types.

Book building, which allows underwriters full discretion over the allocation of shares, can be a good mechanism for investors to reveal their information through their indications of interest.

Under certain conditions, this method can reduce the information asymmetry and thus leads to lower underpricing (Benveniste and Spindt, 1989). Benveniste and Wilhelm (1990) formalise this within the context of the winner's curse model and show that a pure book building method leads to less informational asymmetry, reduces the winner's curse, and consequently leads to lower underpricing.

However, the quality of the book building mechanism is crucial. In many European and Asian countries, restrictions on the use of the book building mechanism reduce the effectiveness of the information revelation leading again to higher underpricing. Examining 65 countries, Ljungqvist et al. (2003) show that book building by non-US underwriters for investors at their domestic market provides no pricing advantage compared to fixed price offerings (Peter-Jan Engelen, 2010).

Chapter 2
The Direct Listing

2.1 Introduction to Direct Listing

For decades, private companies planning to enter public markets have used bankers operating as intermediaries, helping them decide on issue timing and pricing, and in meeting disclosure requirements. That banker-led process has always had inefficiencies, but without clear alternatives, companies had to accept the high costs and the money left on the table on the offering date, as bankers set offering prices well below market prices, and rewarded preferred clients. The IPO process is being disrupted by three major changes. First, companies are waiting longer to go public, and are focusing more on scaling up revenues than on building business models that deliver profits, while private. Second, the investor base for IPOs is shifting, from primarily institutional, to include more retail investors, many of whom are young, and get their investing cues more from social media than from roadshows. Third, there are alternatives emerging to the banker-led process, with a few turning to direct listings and many more, especially in the last two years, using special purpose acquisition companies (SPACs). These alternatives clearly are works in progress, and need improvement, but change is coming (Damodaran, 2021).

2.1.2 The Direct Listing

Direct listings have increasingly been gaining attention as a means for a private company to go public. A direct listing refers to the listing of a privately held company's stock for trading on a national stock exchange (either the NYSE or Nasdaq) without conducting an underwritten offering, spin-off or transfer quotation from another regulated stock exchange. Under current stock exchange rules, direct listings involve the registration of a secondary offering of a company's shares on a registration statement on Form S-1 or other applicable registration form filed with, and declared effective by, the Securities and Exchange Commission, or the SEC. Existing shareholders, such as employees and early-stage investors, whose shares are registered for resale are able to sell their shares on the applicable exchange, but are not obligated to do so, providing flexibility and value to such shareholders by creating a public market and liquidity for the company's stock.

Companies may pursue a direct listing to provide liquidity and a broader trading market for its shareholders; however, the listing company can also benefit. Forecasting a direct listing may make the listing company's equity more attractive to potential investors while the company is still private and provide greater process control to the company as it goes public. For instance, the traditional roadshow has been replaced in some direct listings by an investor day whereby the company invites investors to learn about the company one-to-many, such as via a webcast, which can be considered more democratic as all investors have access to the same educational materials at once. In addition, equity that will be publicly traded can serve as a more attractive acquisition currency, both before and after listing. Most significantly, listing provides a company with optionality to use the public capital markets to raise cash, typically lowering its cost of capital and increasing flexibility in capital planning (Dunn, 2019).

2.2 Regulatory framework

On December 22, 2020, the Securities and Exchange Commission approved the New York Stock Exchange's proposed new direct listing rules to allow companies engaging in a direct listing to raise capital directly through a primary sale of shares, in addition to, or instead of, only facilitating sales of shares by existing shareholders, as previously permitted.

Under these new rules, the NYSE now recognizes two types of direct listings:

1. "*Selling Shareholder Direct Floor Listings*" where a company lists shares on the NYSE in connection with the direct sale of shares by existing shareholders (consistent with NYSE's prior rules); and
2. "*Primary Direct Floor Listings*" where a company lists shares on the NYSE and sells shares itself in the opening auction on the first day of trading, either in addition to, or instead of, facilitating shares by selling shareholders (Hecht, 2023).

The direct listing rules of both the NYSE and Nasdaq Global Select Market are substantially similar and are structured as an exception to each exchange's requirement concerning the aggregate market value of the company to be listed. Prior to the direct listing rules, companies that did not previously have their common equity registered under the Exchange Act were required to show an aggregate market value of "publicly held" shares in excess of $100 million ($110

million for Nasdaq Global Select Market, under certain circumstances), such market value being established by both an independent third-party valuation and recent trading prices in a trading market for unregistered securities (commonly referred to as the Private Placement Market).

"Publicly held" shares include those held by persons other than directors, officers and presumed affiliates (shareholders holding in excess of 10%). The Private Placement Market includes trading platforms operated by any national securities exchange or registered broker-dealers. Generally, in a direct listing, the relevant company either:

1. does not have its shares traded on a Private Placement Market prior its listing or
2. underlying trading in the Private Placement Market is not sufficient to provide a reasonable basis for reaching conclusions about a company's trading price.

On August 15, 2019, Nasdaq submitted to the SEC proposed rule changes related to direct listings on the Nasdaq Global Market and Nasdaq Capital Market, the second- and third-tier Nasdaq markets, respectively. On December 3, 2019, subsequent to an amendment of its proposal by Nasdaq filed on November 26, 2019, the SEC approved Nasdaq's proposed rule changes. The effect of the rule changes is that if the company to be listed does not have recent sustained trading activity in a Private Placement Market, and thereby must rely on an independent third-party valuation consistent with the rules described above, such calculation must reflect a:

1. tentative initial bid price;
2. market value of listed securities and;
3. market value of publicly held shares that each exceed 200 percent of the otherwise applicable requirements.

The direct listing rules discussed above were intended to provide relief for privately-held "unicorns," or companies that are otherwise sufficiently capitalized and which do not need to raise money. Each exchange's listing standards applicable to direct listings by U.S. companies are summarized, by relevant exchange, in the Figure 2.1 that follows:

OVERVIEW OF LISTING STANDARDS APPLICABLE TO DIRECT LISTINGS

	NYSE	NASDAQ GLOBAL SELECT MARKET	NASDAQ GLOBAL MARKET	NASDAQ CAPITAL MARKET
Market Value of Publicly Held Shares (i.e., held by persons other than directors, officers and presumed affiliates)	The listing company must have a recent valuation from an independent third party indicating at least $250 million in aggregate market value of publicly held shares. (Rule 102.01A(E))	The listing company must have a recent valuation from an independent third party indicating at least $250 million in aggregate market value of publicly held shares. (Rule IM-5315-1(b))	The listing company must have a recent valuation from an independent third party indicating in excess of $16 million to $40 million in aggregate market value of publicly held shares, depending on the financial standard met below. (Rule 5405)	The listing company must have a recent valuation from an independent third party indicating in excess of $10 million to $30 million in aggregate market value of publicly held shares, depending on the financial standard met below. (Rule 5505)

Financial Standards	The listing company is required to meet one of the following applicable financial standards: (i) Each of (a) aggregate adjusted pre-tax income for the last three fiscal years in excess of $10 million, (b) with at least $2 million in each of the two most recent fiscal years and (c) positive income in each of the last three fiscal years (the "NYSE Earnings Test"). (ii) Global market capitalization of $200 million (the "Global Market Capitalization Test").	The listing company is required to meet one of the following applicable financial standards: (i) Each of (a) aggregate adjusted pre-tax income for the last three fiscal years in excess of $11 million, (b) with at least $2.2 million in each of the two most recent fiscal years and (c) positive income in each of the last three fiscal years (the "Nasdaq Earnings Standard"). (ii) Each of (a) average market capitalization in excess of $550 million over the prior 12 months, (b) $110 million in revenue for the previous fiscal year and (c) aggregate cash flows for the last three fiscal years in excess of $27.5 million and positive cash flows for each of the last	The listing company is required to meet one of the following applicable financial standards: (i) Each of (a) aggregate adjusted pre-tax income in excess of $1 million in the latest fiscal year or in two of the last three fiscal years and (b) Stockholders' equity in excess of $15 million. (ii) Each of (a) Stockholders' equity in excess of $30 million and (b) two years of operating history. (iii) Market value of listed securities in excess of $150 million. (iv) Total assets and total revenue in excess of $75 million in the latest fiscal year or in two of the last three fiscal years.	The listing company is required to meet one of the following applicable financial standards: (i) Each of (a) Stockholders' equity in excess of $15 million and (b) two years of operating history. (ii) Each of (a) Stockholders' equity in excess of $4 million and (b) market value of listed securities in excess of $100 million. (iii) Total assets and total revenue in excess of $75 million in the latest fiscal year or in two of the last three fiscal years.

		three fiscal years (the "Capitalization with Cash Flow Standard"). (iii) Each of (a) average market capitalization in excess of $850 million over the prior 12 months and (b) $90 million in revenue for the previous fiscal year (the "Capitalization with Revenue Standard"). (iv) Each of (a) market capitalization in excess of $160 million, (b) total assets in excess of $80 million, and (c) stockholders' equity in excess of $55 million (the "Assets with Equity Standard").		
Distribution Standards	The listing company must meet all of the following distribution standards: (i) 400 round lot shareholders; (ii) 1.1 million publicly held shares; and (iii) Minimum initial	The listing company must meet all of the following liquidity requirements: (i) 450 round lot shareholders or 2,200 total shareholders; (ii) 1.25 million	The listing company must meet all of the following distribution standards: (i) 400 round lot shareholders; (ii) 1.1 million publicly held shares; and	The listing company must meet all of the following liquidity requirements: (i) 300 round lot shareholders; (ii) 1 million publicly held shares; and

	reference price of $4.00.	publicly held shares; and (iii) Minimum initial reference	(iii) Minimum initial reference price of $8.00.	(iii) Minimum initial reference price of $8.00.
Engagement of Financial Advisor	Any valuation used in connection with a direct listing must be provided by an entity that has significant experience and demonstrable competence in the provision of such valuations. (Rule 102.01A(E)) A valuation agent will not be deemed to be independent if (Rule 102.01A(E)): (i) At the time it provides such valuation, the valuation agent or any affiliated person or persons beneficially own in the aggregate, as of the date of the valuation, more than 5% of the class of securities to be listed, including any right to receive any such securities	Any valuation used in connection with a direct listing must be provided by an entity that has significant experience and demonstrable competence in the provision of such valuations. (Rule IM-5315-1(e)) A valuation agent shall not be considered independent if (Rule IM-5315-1(f)): (i) At the time it provides such valuation, the valuation agent or any affiliated person or persons beneficially own in the aggregate, as of the date of the valuation, more than 5% of the class of securities to be listed, including any right to receive any such securities exercisable	*Same as the Nasdaq Global Select Market*	*Same as the Nasdaq Global Select Market*

	exercisable within 60 days. (ii) The valuation agent or any affiliated entity has provided any investment banking services to the listing applicant within the 12 months preceding the date of the valuation. For purposes of this provision, "investment banking services" includes, without limitation, acting as an underwriter in an offering for the issuer; acting as a financial adviser in a merger or acquisition; providing venture capital, equity lines of credit, PIPEs (private investment, public equity transactions), or similar investments; serving as placement agent for the issuer; or acting as a	within 60 days. (ii) The valuation agent or any affiliated entity has provided any investment banking services to the listing applicant within the 12 months preceding the date of the valuation. For purposes of this provision, "investment banking services" includes, without limitation, acting as an underwriter in an offering for the issuer; acting as a financial adviser in a merger or acquisition; providing venture capital, equity lines of credit, PIPEs (private investment, public equity transactions), or similar investments; serving as placement agent for the issuer; or acting as a member of a		

	member of a selling group in a securities underwriting. (iii) The valuation agent or any affiliated entity has been engaged to provide investment banking services to the listing applicant in connection with the proposed listing or any related financings or other related transactions.	selling group in a securities underwriting. (iii) The valuation agent or any affiliated entity has been engaged to provide investment banking services to the listing applicant in connection with the proposed listing or any related financings or other related transactions.		

Figure 2.1: Listing standards applicable to direct listing. Source: (Dunn, 2019)

Upon satisfaction of the above requirements of the applicable exchange, the exchange will generally file a certification with the SEC, confirming that its requirements have been met by the listing company. After such filing, the company's registration statement may be declared effective by the SEC (assuming the SEC review has run its course). In practice, the SEC has reviewed registration statements that contemplate a direct listing in substantially the same manner it reviews traditional IPO registration statements, with some additional focus on process as direct listing practice and the related rules evolve. After the registration statement is declared effective by the SEC, the company becomes subject to the governance requirements of the applicable exchange (subject to compliance periods) and the reporting requirements under the Exchange Act. The company may then establish the day its equity will commence trading in consultation with the applicable exchange, which could be the same day as the SEC declares the registration statement effective, assuming the exchange's market maker or specialists, as applicable, and the financial advisor appointed by the company are able to determine an initial reference price (Dunn, 2019).

2.3 The Direct Listing processes

In principle, a direct listing is similar to an IPO in that both involve a company making its securities available for purchase on a national exchange. In each process, the issuer works with attorneys and investment banks to prepare and file a registration statement with the SEC. However, after filing, the processes diverge. In a direct listing, the road show can be abbreviated, and there is no book building, price stabilization, or lockup period. Thus, direct listings allow a company to gain the benefits of being a public company without the major costs associated with the process (Nickerson, 2019).

2.3.1 Selling Shareholders Direct Floor Listings

The amount of time necessary to prepare a direct listing is variable: it can take a few days or a few months. Generally, there are three stages of a direct listing process:

1. preparation;
2. compliance filing;
3. selling the investment opportunity.

Preparation

The preparation to do a direct listing can take as little as a few days or several months. This process involves:

1. ensuring that the entity that is making the offering (the "issuer") is in good shape – making sure any previous financings complied with applicable securities law; the entity has clean and up-to-date financials; the required legal formalities for the entity have been observed; etc.
2. deciding what type of security to sell (sometimes the kind of security you want to sell will not be consistent with your entity type and you will need to convert to a different kind of entity);
3. preparing an offering document that describes the issuer and the offering;
4. preparing legal documents for the offering – for example, promissory note, stock certificate, purchase agreement, etc (Capital, 2013).

Securities that can be sold through a direct listing include common shares, preferred shares, REITs, and debt securities, and more than one type of investment can be offered through the direct listing. The company also decides which medium will be used to market the securities. Potential options include newspaper and magazine

ads, social media platforms, public meetings with prospective shareholders, and telemarketing campaigns, among others (Kenton, Direct Public offering (DPO): definition, how it works, examples, 2022).

During this initial phase, each company is required to fill the so-called SEC Form S-1. The SEC Form S-1 is the initial registration form for new securities required by the SEC for public companies that are based in the U.S. Any security that meets the criteria must have an S-1 filing before shares can be listed on a national exchange, such as the New York Stock Exchange. Form S-1 requires companies to provide information on the planned use of capital proceeds, detail the current business model and competition and provide a brief prospectus of the planned security itself, offering price methodology and any dilution that will occur to other listed securities. SEC Form S-1 is also known as the registration statement under the Securities Act of 1933.

Additionally, the SEC requires the disclosure of any material business dealings between the company and its directors and outside counsel. Investors can view S-1 filings online to perform due diligence on new offerings prior to their issue.

Foreign issuers of securities in the U.S. do not use SEC Form S-1 but instead must submit an SEC Form F-1 (Kenton, SEC Form S-1: What It Is, How to File It or Amend It, 2022).

Compliance Filing

This is the submission of a package of compliance materials to the state securities regulators in every state where you will be offering securities. These materials include your offering document, specimen security, formation documents, financials (usually not required to be audited or reviewed), an attorney opinion (not always required), etc.

From the date of submission to the date you receive regulatory approval to conduct your public offering can be as little as three weeks and as much as six months.

The factors that affect this timeline include the following:

- some states are simply faster and more friendly to direct public offerings;
- anything in your offering that is unusual will likely generate questions from the regulators – each round of questions can add a month or more to the process;

- regulators will sometimes send you many rounds of questions even if your offering is straightforward and your company has a good track record – some of them feel very compelled to look under every possible rock before approving your offering;
- if you request anything special like confidential treatment of your financials, this can add time to the process;
- there are times of year when the securities regulators are especially busy;
- some states do "merit review" and other states do "disclosure review" – merit review means the states look at whether the offering is likely to pose a risk to the investing public while disclosure review simply looks at whether there is sufficient disclosure – merit review usually takes longer (Capital, 2013).

The issuing company must prepare and file compliance documents to the securities regulators under the "Blue Sky Laws" of each state where it intends on conducting a DPO. Blue sky laws are state regulations established as safeguards for investors against securities fraud. The laws, which may vary by state, typically require sellers of new issues to register their offerings and provide financial details of the deal and the entities involved. As a result, investors have a wealth of verifiable information on which to base their judgment and investment decisions (Segal, 2020).

Most direct listing operations do not require the issuers to register with the Securities Exchange Commission (SEC) because they qualify for certain federal securities exemptions. For example, the intrastate exemption or Rule 147 excludes registration with the SEC as long as the company is incorporated in the state where it is offering securities and only selling the securities to residents of that state.

Selling the offering

After receiving regulatory approval, the issuing company running a DPO uses a tombstone ad to formally announce its new offering to the public. The issuer opens up the securities for sale to accredited and non-accredited investors or investors that the issuer already knows subject to any limitations by the regulators. These investors may include acquaintances, clients, suppliers, distributors, and employees of the firm. The offering closes when all securities offered have been sold or when the closing date for the offering period has been clocked.

A DPO that has an intended minimum and maximum number of securities to be sold will be cancelled if the interest or number of orders received for the securities falls below the minimum required. In this case, all funds received will be refunded

to the investors. If the number of orders exceeds the maximum number of shares offered, the investors would be served on a first-come basis or have their shares prorated among all investors.

Although an issuing company can raise funds from the company through a DPO, a trading exchange platform for its securities will still not be available. Unlike an IPO that usually trades on the NYSE or Nasdaq after its offering, a DPO will not have such a trading platform but can opt to trade in the over-the-counter markets (OTC). Like OTC securities, DPO securities may face illiquidity and risk if they are not registered and do not conform to the requirements of the Sarbanes-Oxley Act (Kenton, Direct Public offering (DPO): definition, how it works, examples, 2022).

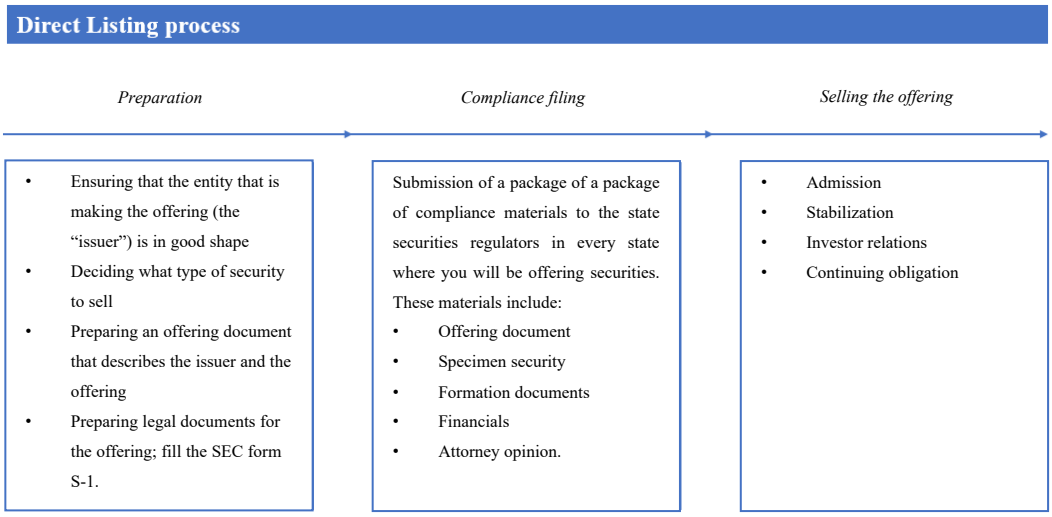

Figure 2.2: The Direct Listing process. Source: Personal Source

2.3.2 Primary Direct Floor Listing

Allowing companies to conduct their initial public offering outside of the traditional IPO format (i.e., an underwritten firm commitment) could potentially revolutionize the way in which companies go public. Historically, companies have not raised fresh capital as part of the direct listing process. On December 12, 2019, the NYSE filed a revised proposal with the SEC that seek to allow companies to publicly raise capital through a direct listing – called a "Primary Direct Floor Listing." The NYSE's proposal would allow a company to sell shares on its own behalf, without underwriters, in addition to or in place of a secondary offering by shareholders.

Under the NYSE's proposal, companies hoping to conduct a primary offering while listing pursuant to the NYSE's proposed rules would have been required to either:

- sell at least $100 million in the opening auction on the first day of listing, thereby ensuring that there will be at least $100 million in public float after the first trade; or
- the aggregate market value of publicly held shares immediately prior to listing and the market value of shares sold by the company in the opening auction is at least $250 million.

In addition, the NYSE's proposal would create a new 90-day grace period for a listed company to meet the requirement for 400 round lot shareholders - called a "Distribution Standard Compliance Period." To benefit from the NYSE's proposed "Distribution Standard Compliance Period," a company would have been required to:

- conduct a primary offering in which the company sells at least $250 million in market value of shares in the opening auction on the initial listing date;
- conduct a secondary offering that demonstrates $350 million in market value of publicly held shares; or
- conduct a primary offering in which the aggregate of the market value of publicly held shares immediately prior to listing and the market value of shares sold by the company in the opening auction is at least $350 million.

Pursuant to Section 19(b)(2) of the Securities Act, the SEC has 45 days to either approve or disapprove the proposed rule change or institute proceedings to determine whether the proposed rule change should be disapproved. The SEC could also extend the 45-day period by an additional 45 days if it determines that a longer period is appropriate and publishes the reasons for such determination, as it did with the recently approved Nasdaq rules.

Nasdaq has not to date introduced a proposed rule change that would allow primary registered offerings concurrently with a direct listing. However, Nasdaq is expected to introduce a similar proposal in order to allow it to best compete with the NYSE as the direct listing practice evolves (Dunn, 2019).

2.4 Pross and cons of Direct Listing

2.4.1 Advantages of Direct Listing

Immediate Benefits to Existing Shareholders.

All shareholders whose shares are registered on the resale shelf registration statement will have the opportunity to participate in the first day of trading of the company's stock. Shareholders who choose to sell can do so at market trading prices, rather than only at the initial price to the public set in an IPO. The ability to sell at market prices on the first day of a listing can be a significant benefit to existing shareholders who elect to sell. However, this benefit assumes there is sufficient market demand for the shares offered for resale.

Potentially Wider Initial Market Participation.

The traditional IPO process includes a focused set of participants, and institutional buyers tend to feature prominently in the initial allocation of shares to be sold by the underwriting syndicate. In a direct listing, any prospective purchasers of shares can place orders with their broker-dealer of choice, at whatever price they believe is appropriate, and such orders become part of the initial reference price-setting process.

Flexibility in Timing of Public Announcement.

IPO marketing has become more flexible since the introduction of rules providing for "testing-the-waters" communications by Emerging Growth Companies and, starting December 3, 2019, all companies. However, a direct listing allows a company to avoid the rigidity of the traditional roadshow conducted for a specified period following the publicly announced launch of an IPO and allows it to tailor marketing activities to the specific considerations underlying the direct listing. These marketing efforts may include one or more investor days and a roadshow-like presentation, conducted at times deemed most advantageous (although the applicable registration statement must still be publicly filed for at least 15 days in advance of any such marketing efforts). Although the approximate timing of the direct listing can be inferred from the status of the publicly filed registration statement, the company may have more flexibility as to the day its shares commence trading on the applicable stock exchange.

Brand Visibility.

As direct listings are still a novel concept in U.S. capital markets, any direct listing with moderate success will likely draw broad interest from market participants and relevant media. This effect is multiplied when the listing company has a well-recognized brand name.

No Underwriting Fees.

A direct listing can save money by allowing companies to avoid underwriting discounts and commissions on the shares sold in the IPO. However, the company will still incur significant fees to market makers or specialists, as applicable, independent valuation agents, auditors, legal counsel, and a financial advisor.

No Lock-up Agreements.

Existing management and significant shareholders are not typically subject to the restrictions imposed by 180-day lock-up agreements standard in IPOs. Notwithstanding, as practice evolves, investors may expect certain key players will be subject to lock-up arrangements, as was the case with Spotify's largest non-management shareholder.

2.4.2 Some issues to consider of Direct Listing

Establishing a Price Range and Initial Reference Price.

No marketing efforts are permissible without a compliant preliminary prospectus on file with the SEC, and such prospectus must include an estimated price range. In a traditional IPO, the cover page of the preliminary prospectus contains a price range of the anticipated initial sale price of the shares. In a direct listing, the current market practice is to describe how the initial reference price is derived (e.g., by buy and sell orders collected by the applicable exchange from various broker-dealers). These buy and sell orders have in the past been largely determined with reference to high and low sales prices per share in recent private transactions of the subject company. In cases where a company does not have such transactions to reference, additional information will be necessary to educate and assist investors and help establish an initial bid price. In addition, the listing company may elect to increase the period between the effectiveness of its registration statement and its first day of trading, thereby allowing time for additional buy and sell orders to be placed. The

financial advisor to the company will play an important role in this process, as discussed below.

Financial Advisors and their Independence.

The rules of both the NYSE and Nasdaq require that the listing company appoint a financial advisor to provide an independent valuation of the listing company's "publicly held" shares and, in practice, assist the applicable exchange's market maker or specialists, as applicable, in setting a reference price. In past direct listings, in particular those involving the NYSE, the financial advisor that served this role was not the financial advisor the listing company engaged to advise generally, including to assist the company define objectives for the listing, position the equity story of the company, advise on the registration statement, and assist in preparing presentations and other public communications. As reviewed in detail below, the financial advisor that values the "publicly held" shares and assists the applicable exchange's market maker or specialists, as applicable, must be independent, which under the relevant rules disqualifies any broker-dealer that has provided investment banking services to the listing company within the 12 months preceding the date of the valuation.

Shares to be Registered.

In a direct listing, a company generally registers for resale all of its outstanding common equity which cannot then be sold pursuant to an applicable exemption from registration (such as Rule 144), including those subjects to registration rights obligations. The company may register shares held by affiliates and non-affiliates who have held the shares for less than one year or otherwise did not meet the requirements for transactions without restriction under Rule 144. Companies may also register shares held by employees to address any regulatory concerns that resales of shares by employees occurring around the time of the direct listing may not have been entitled to an exemption from registration under the Securities Act. All shares subject to registration may be freely resold pursuant to the registration statement only as long as the registration statement remains effective and current. The company will typically bear the related costs.

Direct Listing-specific Risks.

Traditional IPOs offer certain advantages that are not currently present in direct listings. Going public without the structure of an IPO process is not without risk,

such as the need to obtain research coverage in the absence of an underwriting syndicate that has research analysts or the need to educate investors on the company's business model. Any company considering a direct listing should contemplate whether its investor relations apparatus is capable of playing an outsized role in coordinating marketing efforts and outreach to potential investors. Notably, in a direct listing, the listing company's management plays no role in setting the initial reference price, and certain market-making activities conducted by the underwriting syndicate may be unavailable. This may present unacceptable risks for companies that may otherwise be poised to undertake a direct listing (Dunn, 2019).

2.5 IPO vs Direct Listing and underpricing

The major difference between a direct listing and an IPO is that one sells existing stocks while the other issues new stock shares. In a direct listing, employees and investors sell their existing stocks to the public. In an IPO, a company sells part of the company by issuing new stocks. The goal of companies that become public through a direct listing is not focused on raising additional capital, which is why new shares are not necessary.

The second difference is that in a direct listing there are no underwriters. Underwriters work for investment banks to help sell stocks of a company that is going public. They make large purchases which adds value to companies as those shares are taken off their hands. However, the shares are typically sold at a discount to their true value.

The process of using underwriters and selling at a discount increases the time and cost for a company that is issuing new shares. The practice of investment banks buying stocks and then selling the stock themselves is not as common now. Instead, the investment banks will use their network to help market the stocks and drive sales.

Lastly, the direct listing process also does not have the "lock-up" period that applies to IPOs. In traditional IPOs, though not always required, companies have lock-up periods in which existing shareholders are not allowed to sell their shares in the public market. It prevents an overly large supply in the market that would decrease the price of the stock (Institute, 2022).

2.5.1 Direct Listing and underpricing

One of the most attractive features of direct listing, which has prompted many companies especially in the tech sector to use it, is the ability of this tool to significantly reduce the risk of underpricing on the first day of listing.

The price is no longer predetermined when a stock is listed directly; instead, it is established as previously mentioned through an auction system that balances supply and demand. The risk of underpricing on the day of listing is greatly decreased by this price formulation process. In fact, it is not unusual for bank underwriters to list shares in a traditional IPO at a price below their true value in order to protect themselves from the danger of not selling all of the issued shares, harming the company being listed in the process.

Looking recently to 2017 and the Snap, Inc. IPO, which opted for a traditional underwritten IPO, there is a clear example of how costly and potentially disappointing an IPO can be. After the work of their twenty-six underwriters, Snap came to the valuation at $17 per share. The stock opened at $24.00 on the stock exchange. The price then soared forty-four percent from the original price, ultimately closing at $24.48 (the price reached a high of $26.05 during the first day). Through their IPO, Snap, Inc. raised $2.45 billion. As a result of Snap's extreme underpricing they lost out on $1.1 billion, if the stock would have been value at $24.48. This would have resulted in Snap raising $3.56 billion from their IPO. Cumulatively, 145 million shares were sold by the company and fifty-five million were sold by insiders.

Although Snap, Inc. still received solid returns, they paid nearly $85 million (2.5%) in Although Snap, Inc. still received solid returns, they paid nearly $85 million (2.5%) in 17 fees to underwriters. A majority of the fees were paid to Morgan Stanley and Goldman Sachs. Morgan Stanley received sixty million shares (30.2% of the shares allocated to the underwriters), which equated to 25.71 million in fees. Goldman Sachs received 50 million shares, which equates to 24.8% of the underwriters shares and $21.08 million. This reflects a large net gain to the underwriters known as "IPO Candy." This allows the banks to sell shares of their premium IPO to their best buy-side customers. Another speculation is that banks purposely price IPO below the recommended price because they to ensure a large "pop" in the IPO price, which will in turn draw more demand and positive momentum around the stock.

Companies in the past have tried to combat the underpricing that has become so common with the traditional IPO underwriting. In recent years, the emergence of the direct list has given companies the option to avoid the underpricing effects and receive the highest returns from their IPO. This option has mostly been explored by tech-based companies but can be used for any IPO. Looking more closely at Spotify's IPO on April 3, 2018, the New York Stock Exchange provided a reference of $132. Their IPO opened at a fair value price of $165.90, which was amount original shareholders received for each of their shares. Spotify's share price rose to $169.00 on the first day but closed at $149.01. One of the current negatives to the direct listing process is the inability to raise cash. This can be avoided by pre-IPO funding. Spotify was able to raise ample amounts of capital that allowed them to go public without needing the cash benefits of it.

Following the success of Spotify's direct list, Slack chose to use the direct listing process for their IPO and filed for an IPO on April 26, 2019. On June 19, 2019, Slack's stock was released to the public with a reference price of $26. Still Slack's share price surged 48.5% in its first day of trading on the NYSE. It opened at a share price of $38.50 ($12.50 above the reference price). The pop surged Slack's market cap to $19.5 billion. As of April 2019, on the secondary market Slack was valued at nearly $17 billion. Slack was able to raise $427 million in its final round of financing, which pushed its valuation to $7.1 billion.

Although there are still some questions surrounding the direct listing process, it is still viewed as an attractive alternative to the traditional IPO (Skaff, 2020). In the next chapter I will try to demonstrate that direct listing can reduce the underpricing phenomenon typical of traditional IPOs by going to study another case of direct listing. the case in question is that of Coinbase which is a secure online platform for buying, selling, transferring, and storing cryptocurrency.

Chapter 3
The Coinbase Global case

3.1 What are cryptocurrencies

A cryptocurrency is a digital, encrypted, and decentralized medium of exchange. Unlike the U.S. Dollar or the Euro, there is no central authority that manages and maintains the value of a cryptocurrency. Instead, these tasks are broadly distributed among a cryptocurrency's users via the internet. You can use crypto to buy regular goods and services, although most people invest in cryptocurrencies as they would in other assets, like stocks or precious metals. While cryptocurrency is a novel and exciting asset class, purchasing it can be risky as you must take on a fair amount of research to understand how each system works fully.

Bitcoin was the first cryptocurrency, first outlined in principle by Satoshi Nakamoto in a 2008 paper titled "Bitcoin: A Peer-to-Peer Electronic Cash System." Nakamoto described the project as "an electronic payment system based on cryptographic proof instead of trust."

That cryptographic proof comes in the form of transactions that are verified and recorded on a blockchain. A blockchain is an open, distributed ledger that records transactions in code. In practice, it's a little like a checkbook that's distributed across countless computers around the world. Transactions are recorded in "blocks" that are then linked together on a "chain" of previous cryptocurrency transactions.

With a blockchain, everyone who uses a cryptocurrency has their own copy of this book to create a unified transaction record. Each new transaction as it happens is logged, and every copy of the blockchain is updated simultaneously with the new information, keeping all records identical and accurate.

To prevent fraud, each transaction is checked using a validation technique, such as proof of work or proof of stake. According to Simon Oxenham, social media manager at Xcoins.com, "Proof of work is a method of verifying transactions on a blockchain in which an algorithm provides a mathematical problem that computers race to solve". On the other hand, with proof of stake, the number of transactions each person can verify is limited by the amount of cryptocurrency they're willing to "stake," or temporarily lock up in a communal safe for the chance to participate in the process.

Cryptocurrencies can be purchased through crypto exchanges, such as Coinbase, Kraken or Gemini. They offer the ability to trade some of the most popular cryptocurrencies, including Bitcoin, Ethereum and Dogecoin. Still, they may also have limitations. You'll have to check to see if your exchange supports the right crypto pairing you need to make a purchase (Ashford, 2022).

3.2 Introduction to Coinbase

In a short period of time, cryptocurrency has gone from a small, alternative investment to one worth hundreds of billions of dollars collectively. Whether you are looking to invest in crypto or use it as a form of payment, you have likely heard of Coinbase. With tens of millions of users, it's one of the most popular cryptocurrency exchanges online. It's also one of the easiest ways to buy cryptocurrency which has helped fuel its explosion in popularity.

In a nutshell, Coinbase is a cryptocurrency exchange where you can buy coins like Bitcoin, Ethereum and Solana. Not every coin is supported on Coinbase, but there are more than 120 different types of cryptocurrencies on the platform. Meanwhile, there are thousands of different cryptocurrencies available worldwide (Haegele, 2022).

Coinbase was founded in 2012 as a place to send and receive Bitcoin. The company has grown to support dozens of unique cryptocurrencies and has more than 4,700 employees worldwide. It is a decentralized company with no main headquarters, and it operates with users in more than 100 countries, and customers trade approximately $159 billion per quarter.

Coinbase manages a robust cryptocurrency ecosystem supporting 13.000 financial institutions thanks to its two separate trading platforms in addition to a standalone cryptocurrency wallet service (Rosenberg, 2022).

3.2.1 Financial Statement analysis

To better understand the financial health and economic performance of Coinbase, I decided to conduct an analysis of its balance sheet and income statement. I based the analysis on data on the "Refinitiv" platform for a period of three years, from 2019 to 2021.

I consider the financial statement analysis to be of paramount importance as it allows one to:

- *Understand the financial structure of the company*: analysis of the balance sheet allows one to understand the composition of assets, sources of financing, and their evolution over time.
- *Assess the company's liquidity and solvency*: analysis of financial resources and short- and long-term liabilities helps assess the company's ability to meet its financial commitments.
- *Understand economic performance*: analysis of financial statements helps assess the company's profitability, growth, and ability to generate profits and revenues.

In Figures 3.1 and 3.2 you will find the Income Statement and the analysis of the latter. While in Figures 3.3 and 3.4 there are the Balance Sheet and the Strategic Balance Sheet, which is a reformulated balance sheet which show up some information about the firm's strategy for running the business as, for instance, how it invests in operations, how it relies on operating liabilities or how it conducts its financing of the operations.

Income Statement - Standardized (Currency: USD Millions)	31/12/2019	31/12/2020	31/12/2021
Revenues			
Revenue from Business Activities - Total	**533,7**	**1.277,5**	**7.839,4**
Operating Expenses			
Cost of Operating Revenue	82,1	135,5	1.267,9
Gross Profit - Industrials/Property - Total	**451,7**	**1.142,0**	**6.571,5**
Selling, General & Administrative Expenses - Total	442,1	608,4	2.856,7
Other Operating Expense/(Income) - Net	43,90	116,2	510,4
Operating Expenses - Total	**568,1**	**860,1**	**4.635,0**
Operating Profit			
Operating Profit before Non-Recurring Income/Expense	**-34,33**	**417,4**	**3.204,5**
Non-Operating Expenses			
Financing Income/(Expense) - Net - Total	0	0	0
Sale of Tangible & Intangible Fixed Assets - Gain/(Loss)	-5,28	0	0
Other Non-Operating Income/(Expense) - Total	0,37	0,25	288,2
Normalized Pre-tax Profit	**-39,24**	**417,6**	**3.492,7**
Non-Recurring Income/Expense			
Non-Recurring Income/(Expense) - Total	-6,2	-8,4	-465,7
Pre-Tax Income			
Income before Taxes	**-45,40**	**409,2**	**3.026,9**
Taxes			
Income Taxes	-15,02	86,89	-597,2
Net Income After Tax			
Net Income after Tax	**-30,38**	**322,3**	**3.624,1**
After Tax Income/Expense			
Income before Discontinued Operations & Extraordinary Items	**-30,39**	**322,3**	**3.624,1**
Net Income before Minority Interest	-30,39	322,3	3.624,1
Net Income after Minority Interest	-30,39	322,3	3.624,1
Net Income			
Earnings Adjustments to Net Income - Other Expense/(Income)	0	194,9	433,7
Income Available to Common Shares	**-30,39**	**127,5**	**3.190,4**

Figure 3.1: Coinbase Income Statement. Source: Refinitv

Income Statement Analysis (Currency: USD Millions)	31/12/2019	31/12/2020	31/12/2021
Tax Rate			
Income before Taxes	-45,40	409	3.027
Income Taxes	-15,02	86,89	-597,2
Tax Rate	**33%**	**21%**	**-20%**
Tax Benefit			
Financing Income/(Expense) - Net - Total	0,00	0,00	0,00
Tax Rate	33%	21%	-20%
Tax Benefit	**0**	**0**	**0,0**
NOPAT			
Net Income after Tax	-30,38	322	3.624
Financing Income/(Expense) - Net - Total	0,00	0,00	0,00
Tax Benefit	0,00	0,00	0,00
NOPAT	**-30,38**	**322**	**3.624**

Figure 3.2: Coinbase Income Statement analysis. Source: Personal Source

Balance Sheet - Standardized (Currency: USD Millions) Assets	31/12/2019	31/12/2020	31/12/2021
Current Assets			
Cash & Short-Term Investments	549,0	1.061,9	7.123,5
Loans & Receivables - Net - Short-Term	1.293,0	3.952,9	10.983
Prepaid Expenses - Short-Term	21,44	36,22	123,3
Other Current Assets - Total	123,6	83,02	143,7
Total Current Assets	**1.987,0**	**5.134,0**	**18.374**
Non-Current Assets			
Investments - Long-Term	15,60	26,15	364,0
Investments in Associates, Joint Ventures and Unconsolidated Subsidiaries	2,00	2,00	1,46
Property, Plant & Equipment - Net - Total	170,5	150,1	157,6
Other Non-Current Assets - Total	91,89	405,2	1.575,1
Intangible Assets - Total - Net	124,8	138,0	802,5
Total Non-Current Assets	**404,8**	**721,5**	**2.900,6**
Total Assets			
Total Assets	**2.391,8**	**5.855,4**	**21.274**
Liabilities	**31/12/2019**	**31/12/2020**	**31/12/2021**
Current Liabilities			
Trade Accounts Payable & Accruals - Short-Term	41,60	69,42	382,0
Income Taxes - Payable - Short-Term	2,73	5,81	4,55
Operating Lease Liabilities - Current Portion/Short-Term	23,78	25,27	32,37
Other Current Liabilities - Total	1.155,4	4.146,4	11.000
Total Current Liabilities	**1.223,4**	**4.246,9**	**11.419**
Non-Current Liabilities			
Debt - Long-Term - Total	0	0	3.384,8
Operating Lease Liabilities - Long-Term	106,5	82,51	74,08
Other Non-Current Liabilities - Total	0	0	14,83
Total Non-Current Liabilities	**106,5**	**82,51**	**3.473,7**
Total Liabilities			
Total Liabilities	**1.330,0**	**4.329,4**	**14.893**
Shareholders' Equity			
Shareholders' Equity - Attributable to Parent Shareholders - Total	1.061,8	1.526,1	6.381,7
Preferred Shareholders Equity	564,7	562,5	0
Common Equity - Total	497,1	963,6	6.381,7
Total Shareholders' Equity			
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	**1.061,8**	**1.526,1**	**6.381,7**
Total Liabilities & Shareholders' Equity			
Total Liabilities & Equity	**2.391,8**	**5.855,4**	**21.274**

Figure 3.3: Coinbase Balance Sheet. Source: Refinitv

Strategic Balance Sheet (Currency: USD Millions) Assets	31/12/2019	31/12/2020	31/12/2021
Operating Assets			
Investments in Associates, Joint Ventures and Unconsolidated Subsidiaries	2,00	2,00	1,46
Property, Plant & Equipment - Net - Total	170,50	150,10	157,62
Other Non-Current Assets - Total	91,89	405,19	1.575,09
Intangible Assets - Total - Net	124,83	138,04	802,45
Loans & Receivables - Net - Short-Term	1.293,02	3.952,86	10.983,49
Prepaid Expenses - Short-Term	21,44	36,22	123,25
Other Current Assets - Total	123,55	83,02	143,65
Investments - Long-Term	15,6	26,2	364,0
Total Operating Assets	**1.842,83**	**4.793,58**	**14.150,96**
Non-Operating Assets			
Cash & Short-Term Investments	549,0	1.061,9	7.123,5
Total Non-Operating Assets	**564,6**	**1.088,0**	**7.487,4**
Total Assets			
Total Assets	**2.407,4**	**5.881,6**	**21.638,4**
Liabilities	**31/12/2019**	**31/12/2020**	**31/12/2021**
Operating Liabilities			
Trade Accounts Payable & Accruals - Short-Term	41,60	69,42	381,96
Income Taxes - Payable - Short-Term	2,73	5,81	4,55
Operating Lease Liabilities - Current Portion/Short-Term	23,78	25,27	32,37
Other Current Liabilities - Total	1.155,35	4.146,36	11.000,16
Operating Lease Liabilities - Long-Term	106,54	82,51	74,08
Other Non-Current Liabilities - Total	0,00	0,00	14,83
Total Operating Liabilities	**1.327,27**	**4.323,56**	**11.503,40**
Non-Operating Liabilities			
Preferred Shareholders Equity	564,7	562,5	0,0
Debt - Long-Term - Total	0	0	3.385
Total Non-Operating Liabilities	**564,7**	**562,5**	**3.384,8**
Total Liabilities			
Total Liabilities	**1.892,0**	**4.886,0**	**14.888,2**
Shareholders' Equity			
Shareholders' Equity - Attributable to Parent Shareholders - Total	497,1	963,6	6.381,7
Total Shareholders' Equity			
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	**497,1**	**963,6**	**6.381,7**
Total Liabilities & Shareholders' Equity			
Total Liabilities & Equity	**2.389,1**	**5.849,6**	**21.269,9**

Figure 3.4: Coinbase Strategic Balance Sheet. Source: Refinitv

Profitability Analysis

Profitability analysis is the process of evaluating a company's ability to generate profits and earnings. This type of analysis is an important aspect of financial statement analysis as it helps determine a company's financial performance and the efficiency of its operations.

In my profitability analysis, I decided to calculate and analyse the following ratios:

1. *Return On Equity (ROE):* this ratio measures the return generated for each dollar invested by shareholders and indicates the effectiveness of the company's management in using shareholder funds to generate profits.
2. *Return On Investments (ROI):* it is a financial metric that measures the amount of return generated on an investment relative to the cost of the investment.
3. *Return On Sales (ROS):* it is a financial metric that measures a company's profitability in relation to its total sales. ROS is used to evaluate a company's efficiency in generating profits from its sales.

4. *Profit Margin (PM):* This ratio measures the profit generated from a company's core operations, after taking into account operating expenses such as salaries, rent, and utilities and excluding the impact of taxes and non-operating items such as financial gains or losses.
5. *Asset Turnover (AT):* it is a financial ratio that measures a company's ability to generate revenue from its assets. The asset turnover ratio is calculated by dividing a company's total revenue by its total assets.
6. *Fixed Asset Turnover (FAT):* is a financial ratio that measures a company's ability to generate revenue from its fixed assets. Fixed assets are long-term assets such as property, plant, and equipment (PPE) that are used in the company's operations and are expected to have a useful life of more than one year.

In figure 3.5, you can find a summary of the profitability analysis conducted for the financial years 2019, 2020 and 2021. In the table you can also check all the above-mentioned ratios, their calculations, and results.

Profitability Analysis	2019	2020	2021
Return On Equity (ROE)			
Net Income after Tax	(30)	322	3.624
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	497	964	6.382
Net Equity (Equity - Net Income)	527	641	2.758
ROE = Net Income / Net Equity	**-5,76%**	**50,26%**	**131,42%**
Return On Investment (ROI)			
Operating Profit before Non-Recurring Income/Expense	(34)	417	3.204
NOA (Operating Assets - Operating Liabilities)	516	470	2.648
ROI = Operating Income / NOA	**-6,66%**	**88,79%**	**121,04%**
ROI = ROS * AT	**-6,66%**	**88,79%**	**121,04%**
Return On Sales (ROS)			
Revenue from Business Activities - Total	534	1.277	7.839
Operating Profit before Non-Recurring Income/Expense	(34)	417	3.204
ROS = Operating Income / Sales	**-6,43%**	**32,67%**	**40,88%**
Profit Margin (PM)			
NOPAT	(30)	322	3.624
Revenue from Business Activities - Total	534	1.277	7.839
PM (NOPAT / Sales)	**-5,69%**	**25,23%**	**46,23%**
Assets Turnover (AT)			
Revenue from Business Activities - Total	534	1.277	7.839
NOA (Operating Assets - Operating Liabilities)	516	470	2.648
AT = Sales / NOA	**1,04**	**2,72**	**2,96**
Fixed Assets Turnover (FAT)			
Property, Plant & Equipment - Net - Total	171	150	158
Intangible Assets - Total - Net	125	138	802
Tot Operating Fixed Assets	295	288	960
Revenue from Business Activities - Total	534	1.277	7.839
FAT	**1,81**	**4,43**	**8,17**

Figure 3.5: Coinbase Profitability Analysis. Source: Personal Source

What is immediately noticeable is the incredible increase in performance from 2020 to 2021. ROE increased from 50,26% in 2020 to an impressive 131.42% in 2021, ROI from 88.79% to 121.04%, ROS from 32.67% to 40.88%, and PM from 25.23% to 46.23%. The reasons behind these sensational results are mainly two:

1. the incredible boom of the cryptocurrency market between 2020 and 2021
2. the effects of the IPO in terms of image and performance

The total value of all virtual currencies increased from 700 billion at the beginning of the year to 3 trillion in November 2021. The cryptocurrency boom in 2021 was driven by a combination of factors, including increasing institutional adoption, growing investor interest, and a favourable macroeconomic environment.

- *Institutional Adoption*: in 2021, major corporations, financial institutions, and investment firms began to invest in cryptocurrencies, which increased the legitimacy and credibility of the digital assets. This institutional adoption of cryptocurrencies helped to drive up their value, as more traditional investors began to view them as a viable investment option.
- *Growing Investor Interest*: as cryptocurrencies gained more mainstream recognition and acceptance, individual investors also began to show growing interest in the digital assets as a way to diversify their portfolios, as well as to access an asset class that offered the potential for high returns.
- *Favorable Macroeconomic Environment*: the COVID-19 pandemic led to a global economic slowdown, which fueled concerns about the stability of traditional financial markets and currencies.
- *Advancements in Technology*: the continued advancement of blockchain technology, which underlies cryptocurrencies, also played a role in driving the cryptocurrency boom in 2021, making them more attractive to users and investors.

The second reason is linked with the positive effect of the direct listing. Any direct listing with moderate performance will probably garner considerable interest from market players and associated media, as direct listings are still a unique concept in U.S. capital markets. When the listing company has a well-known brand name, this effect is amplified. This results in increased brand visibility and an exponential increase in revenues.

Liquidity Analysis

A liquidity analysis is an important aspect of a financial analysis and is used by investors, analysts, and managers to assess a company's financial stability and its ability to meet its short-term obligations. Liquidity refers to a company's ability to convert its assets into cash quickly and easily to meet its financial obligations as they come due.

A liquidity analysis typically involves calculating several liquidity ratios, such as the current ratio, quick ratio, and cash ratio, which measure the company's ability to meet its short-term obligations using its most liquid assets. These ratios provide insight into the company's financial stability and its ability to weather short-term financial difficulties. In my liquidity analysis, I decided to calculate and analyse the following ratios:

1. *Current Ratio:* it measures the company's ability to meet its short-term obligations using its current assets.
2. *Quick Ratio:* it is similar to the current ratio, but excludes inventory from the current assets, as inventory may be difficult to convert into cash quickly.
3. *Cash ratio:* it measures the company's ability to meet its short-term obligations using only its cash and cash equivalents.
4. *Duration of the Working Capital Cycle:* it refers to the length of time it takes for a company to convert its short-term assets into cash through its sales and collections processes.

In figure 3.6, you can find a summary of the liquidity analysis conducted for the financial years 2019, 2020 and 2021.

Liquidity Analysis	2019	2020	2021
Current ratio			
Total Current Assets	1.987	5.134	18.374
Total Current Liabilities	1.223	4.247	11.419
Current ratio	**1,62**	**1,21**	**1,61**
Quick ratio			
Total Current Assets	1.987	5.134	18.374
Inventory	-	-	-
Total Current Liabilities	1.223	4.247	11.419
Quick ratio	**1,62**	**1,21**	**1,61**
Cash ratio			
Cash & Cash Equivalents	549	1.062	7.123
Total Current Liabilities	1.223	4.247	11.419
Cash ratio	**0,45**	**0,25**	**0,62**
Duration of the Working Capital Cycle (WCC - 360 days)			
Inventory	-	-	-
Trade Accounts & Trade Notes Receivable - Net	18	189	396
Trade Accounts & Trade Notes Payable - Short-Term	6	12	40
Revenue from Business Activities - Total	534	1.277	7.839
Operating Expenses - Total	568	860	4.635
Average Stock Period		0,00	0,00
Average Client Period		29,16	13,44
Average Debt Period		3,76	2,01
Duration of the WCC		**25,40**	**11,43**

Figure 3.6: Coinbase Liquidity Analysis. Source: Personal Source

My analysis shows that the company, in all three years under consideration, is able to cover its short-term liabilities with short-term assets, since both the current ratio and the cash ratio are always greater than 1. It is worth highlighting that, in 2021, Coinbase is even able to cover 62% of its short-term liabilities with cash alone. this is a symptom of great coverage and financial stability in the short term.

The duration of the working capital cycle is the length of time it takes for a company to convert its short-term assets into cash through its sales and collections processes. As we can see from the table it worth 25,4 days in 2020 and 11,43 days in 2021. The situation in this respect is not bad, but it would be better if the ratio were as close to 0 or even negative as possible, which would mean that the company has such strong bargaining power that it is able to first collect from creditors and then pay debtors.

Solidity Analysis

Solvency analysis is an important aspect of a financial analysis and is used by investors, analysts, and managers to assess a company's financial stability and its ability to meet its long-term obligations. It is also useful in determining the company's borrowing capacity and in making decisions about investment, strategy, and resource allocation.

In my solidity analysis, I decided to calculate and analyse the following ratios:

1. *Equity to Fixed Asset Ratio:* it is a financial ratio that measures the proportion of a company's fixed assets that are financed by equity. This ratio provides insight into the company's financial leverage, which is the extent to which the company is using debt to finance its assets.
2. *Equity and long-term Debt to Fixed Asset Ratio:* it is a financial ratio that measures the proportion of a company's fixed assets that are financed by equity and long-term debt. This ratio provides insight into the company's financial leverage, which is the extent to which the company is using debt to finance its assets.
3. *Debts to Equity Ratio:* it measures the relationship between a company's debt and equity and provides insight into the company's financial leverage.
4. *Rigidity & Elasticity Ratio:* the elasticity ratio is a financial ratio used to measure a company's ability to respond to changes in demand for its products or services.

Solidity Analysis	2019	2020	2021
Equity to Fixed Assets Ratio			
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	1.062	1.526	6.382
Total Non-Current Asset	405	721	2.901
Equity to Fixed Assets Ratio	**2,62**	**2,12**	**2,20**
Equity and Long Term Debts to Fixed Assets Ratio			
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	1.062	1.526	6.382
Total Non-Current Liabilities	107	83	3.474
Total Non-Current Asset	405	721	2.901
Equity and Long Term Debts to Fixed Assets Ratio	**2,89**	**2,23**	**3,40**
Debts to Equity ratio (Total debts / Equity)			
Total Liabilities	1.330	4.329	14.893
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	1.062	1.526	6.382
Debts to Equity ratio (Total debts / Equity)	**1,25**	**2,84**	**2,33**
Debts to Equity Ratio (Financial Debts / Equity)			
Total Non-Operating Liabilities	-	-	3.385
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	1.062	1.526	6.382
Debts to Equity ratio (Financial debts / Equity)	-	-	**0,53**
Rigidity & Elasticity Ratio			
Total Non-Current Asset / Total Assets	**0,17**	**0,12**	**0,14**
Total Current Assets / Total Assets	**0,83**	**0,88**	**0,86**
Total Non-Current Assets	405	721	2.901
Total Currents Assets	1.987	5.134	18.374
Total Non-Current Assets / Total Current Assets	**0,20**	**0,14**	**0,16**

Figure 3.7: Coinbase Solidity Analysis. Source: Personal Source

It is clear from the analysis that Coinbase is very solid, and this is evidenced by the fact that all ratios are above 2. This means that the company, through its equity and long-term debt, has not only financed its long-term assets, but also its short-term assets. it can be said that the company is also too solid and could used valuable resources such as equity and long-term debt to acquire assets that can provide long-term growth.

From the analysis it can also be said that the company, in addition to being very solid is also particularly elastic as the elasticity ratio is always above 0.80.

3.2.2 Financial Statement forecast

Financial statement forecasting is the process of estimating future financial performance based on historical financial data and information about current and expected future conditions. The main goal of financial statement forecasting is to provide stakeholders with information about the future financial health and performance of a company.

The process of financial statement forecasting involves collecting and analyzing financial data, making assumptions about future conditions, and using mathematical models to estimate future financial performance.

The accuracy of financial statement forecasting depends on the quality of the data and assumptions used, as well as the accuracy of the forecasting models.

Balance Sheet - Forecast (Currency: USD Millions)	Hystorical		Forecast				
	31/12/2019	31/12/2020	31/12/2021	31/12/2022	31/12/2023	31/12/2024	31/12/2025	31/12/2026
Property, Plant & Equipment - Gross - Total	180,91	174,58	199,86	171,16	184,58	203,46	225,44	250,19
Property, Plant & Equipment - Accumulated Depreciation & Impairment - Total	10,41	24,49	42,25	54,45	67,60	82,10	98,16	115,99
Property, Plant & Equipment - Net - Total	170,50	150,10	157,62	158,96	171,43	188,96	209,37	232,36
CapEx		-6,33	25,28	-28,70	13,42	18,88	21,97	24,75
Intangible Assets - excluding Goodwill - Net - Total	70,14	60,83	176,69	151,32	163,18	179,87	199,30	221,18
Trade Accounts & Trade Notes Receivable - Net	17,50	189,47	396,03	518,34	558,98	616,17	682,71	757,67
Trade Accounts & Trade Notes Payable - Short-Term	5,94	12,03	39,83	47,54	54,60	62,68	71,92	82,51
Net Working Capital	11,56	177,44	356,20	470,81	504,38	553,49	610,79	675,16
Change in NWC		165,88	178,76	114,61	33,57	49,11	57,30	64,37
Balance Sheet Assumptions	**31/12/2019**	**31/12/2020**	**31/12/2021**	**31/12/2022**	**31/12/2023**	**31/12/2024**	**31/12/2025**	**31/12/2026**
Property, Plant & Equipment as % of Revenues	34%	14%	3%	3%	3%	3%	3%	3%
Intangible Assets as % of Revenues	13%	5%	2%	2%	2%	2%	2%	2%
Trade Accounts & Trade Notes Receivable as % of Revenues	3%	15%	5%	8%	8%	8%	8%	8%
Trade Accounts & Trade Notes Payable as % of Operating Costs	1,0%	1,4%	0,9%	1,1%	1,1%	1,1%	1,1%	1,1%

Figure 3.8: Balance Sheet Forecast.
Source: Personal Source

Income Statement - Forecast (Currency: USD Millions)	Hystorical		Forecast					
	31/12/2019	31/12/2020	31/12/2021	31/12/2022	31/12/2023	31/12/2024	31/12/2025	31/12/2026
Revenue from Business Activities - Total	533.74	1.277.48	7.839.44	6.663.52	8.296.09	9.880.64	11.352.86	12.771.96
Operating Expenses - Total	568.07	860.13	4.634.96	4.284.44	5.681.91	7.046.64	8.384.83	9.751.77
Depreciation	7.20	14.30	18.40	12.11	15.07	17.95	20.62	23.20
Amortization	9.7	16.7	45.3	33.50	41.71	49.68	57.08	64.21
Financing Income/(Expense) - Net - Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Operating Income/(Expense) - Total	0.37	0.25	288.18	288.18	288.18	288.18	288.18	288.18
Non-Recurring Income/(Expense) - Total	-6.16	-8.40	-465.72	-172.19	-214.38	-255.33	-293.37	-330.04
Income Taxes	-15.02	86.89	-597.18	615.84	663.45	707.60	731.29	735.12
Income Statement Assumptions	**31/12/2019**	**31/12/2020**	**31/12/2021**	**31/12/2022**	**31/12/2023**	**31/12/2024**	**31/12/2025**	**31/12/2026**
Revenue growth rate		139%	514%	-15%	25%	19%	15%	13%
Global Inflation Rate			4.7%	8.8%	6.5%	4.1%	3.6%	3.4%
Op. Expenses as % of Revenue (adjusted for Inflation Rate)	106%	67%	59%	64%	68%	71%	74%	76%
Depreciation as % of Gross PPE	4%	8%	9%	7%	7%	7%	7%	7%
Amortization as % of Net Intangible Assets	14%	27%	26%	22%	22%	22%	22%	22%
Non-Recurring Income/(Expense) as % of Revenue	-1.15%	-0.66%	-5.94%	-2,58%	-2,58%	-2,58%	-2,58%	-2,58%
Income before Taxes	-45.40	409.20	3.026.94	2.495.07	2.687.97	2.866.85	2.962.83	2.978.33
Tax Rate	33%	21%	20%	25%	25%	25%	25%	25%

Figure 3.9: Income Statement Forecast.
Source: Personal Source

Income Statement Forecast

The first assumption I made was to consider the data obtained from Refinitiv as of 12/31/2021 as forecast and not as historical. This choice was motivated by the exceptional performance that Coinbase achieved in 2021, a performance that is difficult to estimate despite the boom in the cryptocurrency market.

Subsequently, I started with estimation of "*Revenues from Business Activities*". For 2022, I forecast a 15% decrease. The first motivation that led me to this choice is the regulatory pressure around this sector. In fact, Governments and regulatory agencies around the world have become increasingly concerned about the use of cryptocurrencies for illegal activities, such as money laundering and terrorism financing. The second motivation is related to the market competition. The cryptocurrency market has become increasingly competitive, with new digital assets entering the market and existing assets vying for market share. This increased competition can lead to price pressures, which can impact the value of cryptocurrencies. Being Coinbase closely related to the cryptocurrencies market I forecasted the revenues growth rate for the years 2023-2026 by following the estimates that Statista made on cryptocurrencies segment's revenues. According to Statista (Statista D. A., 2022):

- Revenue in the Cryptocurrencies segment is projected to reach US$42.69bn in 2023.
- Revenue is expected to show an annual growth rate (CAGR 2023-2027) of 14.36% resulting in a projected total amount of US$73.01bn by 2027.
- The average revenue per user in the Cryptocurrencies segment amounts to US$145.40 in 2023.
- From a global comparison perspective, it is shown that the highest revenue is reached in the United States (US$22,710,000,000.00 in 2023).
- In the Cryptocurrencies segment, the number of users is expected to amount to 347.73m users by 2027.
- User penetration will be 3.8% in 2023 and is expected to hit 4.4% by 2027.

Following this analysis, the 2023's growth rate will be 24,5%, the 2024 one will be 19,1%, the 2025 one will be 14,9%, and the 2026 one will be 12,5% (see figure 3.10).

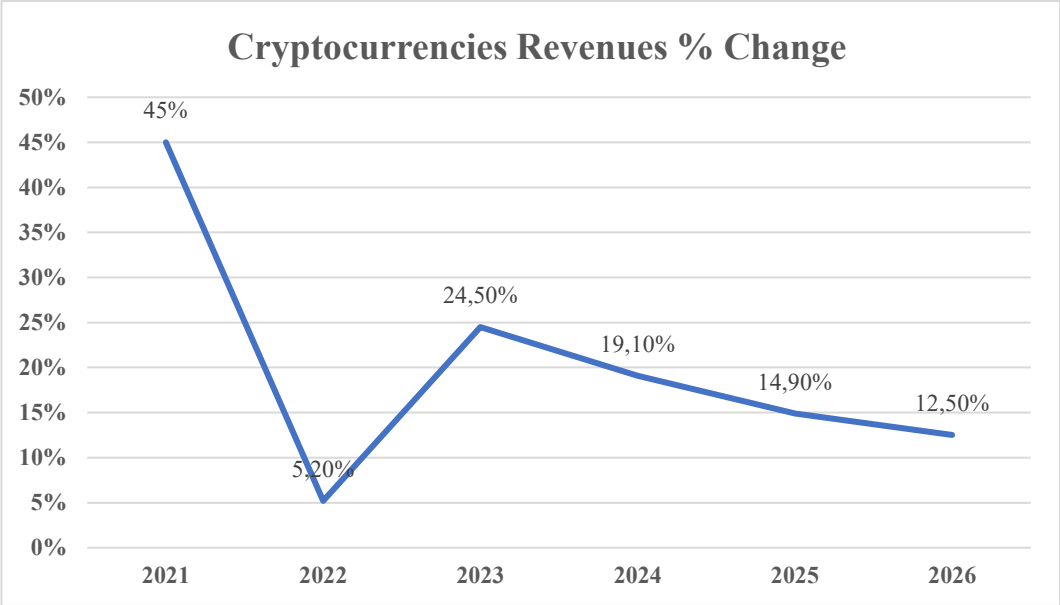

Figure 3.10: Cryptocurrency Revenues Change. Source: (Statista D. A., 2022)

Once the revenues were estimated, I moved on to estimating the other items in the income statement. Starting with "*Operating expenses*", I calculated the ratio of their historical values to revenues and, starting in 2022, I assumed the "global inflation rate" estimated by Statista (Statista I. , 2022) as the growth rate for this percentage (see Figure 3.11).

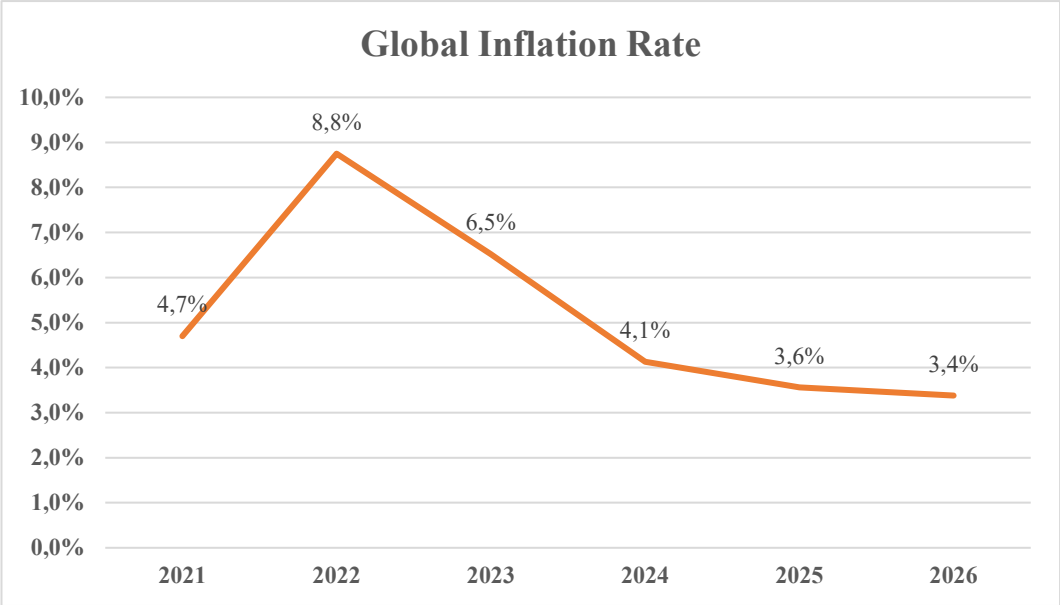

Figure 3.11: Global Inflation Rate. Source: (Statista I. , 2022)

For estimating "*Depreciation*" and "*Amortization*", I calculated the ratios of historical Gross PP&E and Net Intangible Assets to Revenues, respectively, averaged and assumed the latter as constant until 2026.

Next, I assumed "*Financing Income/(Expenses) – Net*" as constant and equal to 0, while I estimated "*Non-recurring Income/(Expenses)*" by calculating the ratio of historical values to Revenues, calculated the average, and assumed this as constant until 2026.

For the "*Income taxes*" estimates, I started from the Income before Taxes forecasted thanks to the estimates made earlier, then calculated the average Tax Rate from the historical values as the ratio of Income Taxes to Income before Taxes and assumed 25% as the average Tax Rate.

Balance Sheet Forecast

Regarding the balance sheet, I decided to estimate not all items, but only those useful for Coinbase valuation with Discounted Cash Flow (DCF).

The first item I estimated is the "*Gross PP&E*." I calculated the average ratio to Revenues and assumed this to be constant until 2026. Next, I estimated "*Accumulated Depreciation*" by adding the Depreciation calculated earlier (see Income Statement forecast) and, subtracting the latter from Gross PP&E, I calculated "*Net PP&E*". For DCF purposes, I also calculated "*Capex"* as the difference between the previously estimated Gross PP&E.

Then I estimated the "*Net Intangible Assets*" by calculating the average ratio to Revenues and assumed this to be constant until 2026.

For estimating "*Net Working Capital (NWC)*", calculated as the difference between "Trade Receivables" and "Trade Payables" (given the absence of inventory), I proceeded to estimate these two items. For "*Trade Receivables*" I calculated the average ratio to Revenues and assumed this as constant until 2026. Whereas, for "*Trade Payables*", I calculated the average ratio to Operating Expenses and assumed this to be constant until 2026. Once the NWC was estimated, I calculated the "*Change in NWC*" as the annual difference in values.

3.3 Coinbase Stock valuation

The purpose of this thesis is to understand whether direct listing is able to pose as a sustainable alternative to the classic IPO and whether it is indeed able, given its characteristics, to decrease the underpricing phenomenon.

In order to answer these questions, I decided to conduct a valuation of Coinbase company that, as mentioned earlier, listed via direct listing. Through price extraction with a comparable analysis, a DCF and a through comparison with the results of competitors in their respective listings, I will try to make a judgment on the effectiveness of direct listing in this specific case.

3.3.1 Comparable analysis

Comparable stock analysis, also known as "peer analysis" or "comp analysis," is a method used by analysts and investors to evaluate the financial performance and potential of a company by comparing it to other similar companies in the same industry. The goal of comparable stock analysis is to determine how a company's stock price and financial metrics stack up against those of its peers, in order to make informed investment decisions.

To conduct a comparable analysis, the first thing to do is to choose comparable companies. To do this, I helped myself with Refinitv's technology. Refinitv offers this tool called "Starmine Peers" which is generated through an algorithm that combines competitor lists provided in fillings, analyst cross coverage, business classification and revenue proximity as showed in Figure 3.12:

Sample Peer Set: Starmine Peers

	#	RIC	Company Name	Refinitiv Compet...	Analyst Coverag...	Revenue($ MM) LFY	Sub-Industry
		COIN.O	Coinbase Global Inc			7,839	Financial Exchanges ...
✓	1	SQ.N	Block Inc	X	13	17,661	Data Processing & O...
✓	2	PYPL.OQ	PayPal Holdings Inc	X	11	25,371	Data Processing & O...
✓	3	FISV.OQ	Fiserv Inc	--	10	17,737	Data Processing & O...
✓	4	GPN.N	Global Payments Inc	--	9	8,976	Data Processing & O...
✓	5	FIS.N	Fidelity National Info...	--	9	13,877	Data Processing & O...

Figure 3.12: Starmine Peers. Source: Refinitv

The column “Refinitv Competitor” displays list of companies reported as competitors by Coinbase in its annual report, while the column “Analyst Coverage Overlap” represents the number of analysts that have active recommendations on both the focus stock and the peer.

The comparable companies chosen are as follows:

- *Block Inc*: Block, Inc. creates tools that enable businesses, sellers and individuals to participate in the economy. Its segments include Square and Cash App. The Square segment includes managed payment services, software solutions, hardware and financial services products offered to sellers. The Cash App segment includes the financial tools available to individuals within the mobile Cash App, including peer-to-peer payments, bitcoin, and stock investments.
- *PayPal Inc*: PayPal Holdings, Inc. is a technology platform that enables digital payments and commerce experiences on behalf of merchants and consumers across the world. It enables consumers to exchange funds with merchants using a range of funding sources, which may include a bank account, a PayPal or Venmo account balance, PayPal and Venmo branded credit products, a credit card, a debit card, certain cryptocurrencies, or other stored value products, such as gift cards, and eligible credit card rewards.
- *Fiserv Inc*: Fiserv, Inc. is a global provider of payments and financial services technology solutions. The Company provides account processing and digital banking solutions, card issuer processing and network services, payments, e-commerce, merchant acquiring and processing, and the Clover cloud-based point-of-sale solution. The Company's segments include Merchant Acceptance (Acceptance), Financial Technology (Fintech) and Payments and Network (Payments).
- *Global Payments Inc*: Global Payments Inc. is a payments technology company that delivers software and services. The Company's segments include Merchant Solutions, Issuer Solutions and Business, and Consumer Solutions. The Merchant Solutions segment provides payments technology and software solutions to customers globally. This segment offerings include authorization, settlement and funding services, customer support, chargeback resolution, terminal rental, sales and deployment, payment security services, consolidated billing and reporting. The Issuer Solutions segment provides solutions that enable financial institutions and other financial service providers to manage their card portfolios. The Business and Consumer Solutions segment provides general purpose reloadable (GPR) prepaid debit and payroll cards, demand deposit accounts and other financial service

solutions to the underbanked and other consumers and businesses in the United States and parts of Europe through its Netspend and other brands

- *Fidelity National Information Services Inc*: Global Payments Inc. is a payments technology company that delivers software and services. The Company's segments include Merchant Solutions, Issuer Solutions and Business, and Consumer Solutions. The Merchant Solutions segment provides payments technology and software solutions to customers globally. This segment offerings include authorization, settlement and funding services, customer support, chargeback resolution, terminal rental, sales and deployment, payment security services, consolidated billing and reporting. The Issuer Solutions segment provides solutions that enable financial institutions and other financial service providers to manage their card portfolios. The Business and Consumer Solutions segment provides general purpose reloadable (GPR) prepaid debit and payroll cards, demand deposit accounts and other financial service solutions to the underbanked and other consumers and businesses in the United States and parts of Europe through its Netspend and other brands.

Once I had the set of comparable companies, I could perform my comparable analysis. The multiples I decided to consider are three and they are: Enterprise Value to Total Revenues (*EV/Total Revenues*), Enterprise Value to EBITDA (*EV/EBITDA*) and Price-Earnings ratio (*Price/Earnings*). In order to catch the important performance that Coinbase has started to record since the beginning of 2021, I decided to compare the historical data of the companies starting from the 2nd quarter of 2020 to the 1st quarter of 2021 (01/04/2020 - 31/03/2021). This is because the data as of 31/03/2021 are the latest available before Coinbase's listing date, which occurred on 14/04/2021.

Operating Statistics							
Company Name	**Ticker**	**Share Price**	**Market Cap**	**Enterprise Value**	**Total Revenues**	**EBITDA**	**Net Income**
Coinbase Global Inc.	*COIN*	*N/A*	*N/A*	*N/A*	*2.887,96*	*1.372,53*	*1.061,71*
PayPal Holdings Inc.	PYPL	242,84	285.157,62	270.391,22	22.869	5.297	5.215
Block Inc.	SQ	227,05	103.232,47	103.314,63	13.174	357	358
Fidelity National Information Service Inc.	FIS	140,61	87.476,25	103.146,25	12.698	4.497	-
Global Payments Inc.	GPN	201,58	58.484,34	67.703,30	7.510	2.907	554
Fiserv Inc.	FISV	119,04	79.353,08	100.720,08	14.838	5.352	894
Maximum			285.157,62	270.391,22	22.869,00	5.352,00	5.215,00
75th Percentile			103.232,47	103.314,63	14.838,00	5.297,00	1.974,25
Median			**87.476,25**	**103.146,25**	**13.173,74**	**4.497,00**	**724,07**
25th Percentile			79.353,08	100.720,08	12.698,00	2.907,13	505,04
Minimum			58.484,34	67.703,30	7.509,97	357,06	357,74

Figure 3.13: Operating Statistics. Source: Refinitv

Figure 3.13 shows the operating statics used to calculate the multiple dated as of 31/03/2021. Instead, Figure 3.14 shows the calculation of the items Total Revenues, EBITDA and Net Income divided by quarter.

Income Statement - 31/03/2021	30/06/2020	30/09/2020	31/12/2020	31/03/2021	Sum
Coinbase Global Inc.					
Total Revenues	186,38	315,36	585,11	1.801,11	**2.887,96**
EBITDA	42,09	101,51	226,59	1.002,34	**1.372,53**
Net Income	32,26	81,20	176,79	771,46	**1.061,71**
PayPal Holdings Inc.					
Total Revenues	5.261,00	5.459,00	6.116,00	6.033,00	**22.869,00**
EBITDA	1.295,00	1.294,00	1.308,00	1.400,00	**5.297,00**
Net Income	1.530,00	1.021,00	1.567,00	1.097,00	**5.215,00**
Global Payments Inc.					
Total Revenues	1.671,95	1.917,82	1.930,19	1.990,01	**7.509,97**
EBITDA	592,45	757,12	764,93	792,63	**2.907,13**
Net Income	26,67	194,59	157,20	175,68	**554,14**
Block Inc.					
Total Revenues	1.923,63	3.033,87	3.158,97	5.057,27	**13.173,74**
EBITDA	39,35	87,54	92,15	138,02	**357,06**
Net Income	-11,48	36,52	293,69	39,01	**357,74**
Fidelity National Information Service Inc.					
Total Revenues	2.962,00	3.197,00	3.316,00	3.223,00	**12.698,00**
EBITDA	962,00	1.202,00	1.272,00	1.061,00	**4.497,00**
Net Income	28,00	22,00	100,00	-371,00	**-221,00**
Fiserv Inc.					
Total Revenues	3.465,00	3.786,00	3.832,00	3.755,00	**14.838,00**
EBITDA	1.154,00	1.366,00	1.518,00	1.314,00	**5.352,00**
Net Income	19,00	257,00	316,00	302,00	**894,00**

Figure 3.14: Income Statement items – 31/03/2021. Source: Refinitv

After collecting the necessary data, I proceeded with the calculation of the comparables' multiples as shows in Figure 3.15. In order to extrapolate the coinbase price, I calculated the median of these multiples. The median of multiples is the median value of multiples calculated for a group of comparable companies.

The calculation of the median of multiples provides a more accurate valuation compared to the average, as it takes into account any outliers (extreme values) that could affect the average.

Valuation Statistics				
Company Name	**Ticker**	**EV/Total Revenues**	**EV/EBITDA**	**Price/Earnings**
PayPal Holdings Inc.	PYPL	11,82	51,05	54,68
Block Inc.	SQ	7,84	289,35	288,57
Fidelity National Information Service Inc.	FIS	8,12	22,94	-
Global Payments Inc.	GPN	9,02	23,29	105,54
Fiserv Inc.	FISV	6,79	18,82	88,76
Maximum		11,82	289,35	288,57
75th Percentile		9,02	51,05	151,30
Median		**8,12**	**23,29**	**97,15**
25th Percentile		7,84	22,94	80,24
Minimum		6,79	18,82	54,68

Figure 3.15: Multiples calculation. Source: Personal Sources

Coinbase Financials	EV/Total Revenues	EV/EBITDA	Price/Earnings	Average Price
Enterprise Value	23.458,99	31.964,45	-	257,19
Financial Debt	0	0	-	
Cash & S-T Investments	1983,32	1983,32	-	
Equity Value	25.442	33.948	103.146	
Outstanding Shares	211	211	211	
Price	***120,77***	***161,15***	***489,63***	

Figure 3.16: Coinbase's price. Source: Personal Sources

Once the median of multiples was obtained, I moved on to the calculation of Coinbase prices.

Starting with the *EV/Total Revenues*, I multiplied Coinbase's Total Revenues as of March 31, 2021, obtaining the Enterprise Value. From this, I derived the value of Equity by subtracting financial debt (which was 0 as of March 31, 2021) and adding cash. Finally, I divided Equity by the number of Coinbase shares, obtained from Refinitiv as of 31/03/2021, obtaining a price of $120.77.

The same reasoning was done for the *EV/EBITDA* multiple, through which I obtained the Enterprise Value by multiplying Coinbase's EBITDA as of March 31, 2021, obtaining a price of $161,15.

Finally, from the *Price/Earnings*, I calculated the value of equity by multiplying Coinbase's Net Income as of March 31, 2021, and dividing by the number of shares, obtaining a price of $489,63. Averaging the three gives a final price of *$291.31* as shows in Figure 3.16.

It's important to note that comparable stock analysis is just one tool that investors can use to evaluate a company's financial performance and should be used in conjunction with other forms of analysis. Additionally, it's essential to keep in mind that the results of a comparable stock analysis may be influenced by a number of factors, including differences in accounting practices, company size, and stage of development. For these reasons, I decided to conduct a Discounted Cash Flow to better evaluate Coinbase's stock price.

3.3.2 Discounted Cash Flow method

The DCF method for companies' valuation involves forecasting the future cash flows of the company and discounting them back to their present value using a discount rate. The purpose of this analysis is to estimate the intrinsic value of the company and determine whether its stock is overpriced or underpriced.

Having already estimated the income statement (for more information, see section 3.2.2), in order to perform the DCF, it is necessary to estimate the discount rate to be applied to future cash flows.

The first step I took was to calculate the *levered betas* of comparable companies. The beta levered of a company refers to the sensitivity of its stock price to the overall market. It is a measure of systematic risk, which is the risk associated with the market as a whole, rather than the specific risk associated with a particular stock or company. It is an estimate of how much the stock's returns are likely to change for a 1% change in the market returns. A beta levered of 1.0 indicates that the stock's returns are expected to move in line with the market returns, while a beta levered less than 1.0 indicates that the stock's returns are expected to be less volatile than the market returns, and a beta levered greater than 1.0 indicates that the stock's returns are expected to be more volatile than the market returns.

To compute the levered betas, I performed a beta regression by obtained the comparable companies' daily closing prices from Refinitiv for a period from 13/04/2020 to 13/04/2021, i.e., the day before the Coinbase listing. As market benchmark, I chose the S&P500, all the companies considered being listed in the United States, and of the latter I also obtained the daily closing prices for the same reference period.

Once all the closing prices were obtained, I calculated the *daily returns* as the percentage change in the prices considered. Then, I calculated the *excess returns*. Excess returns are defined as the difference between the daily returns and the risk-free rate. As the risk-free rate, I decided to consider the yield to maturity of the *5-Years U.S. Treasury Notes* (Watch, 2021). I used this security for two reasons. The first motivation is geographical, since all the companies considered are listed in the United States, I think it is more relevant to use a U.S. bond. The second motivation is temporal. In fact, since my forecast has a duration of 5 years, I think it is correct to use as a risk-free rate a bond that has the same duration.

Finally, I calculated the levered betas of the companies using Excel's "Slope" function. The results obtained are shown in Figure 3.17. Figures 3.18 through 3.22 show, for illustrative purposes, the graphical results of the beta regression.

Company Name	Ticker	Levered Beta	Alpha
PayPal Holdings Inc.	PYPL	**1,231**	**0,003061**
Block Inc.	SQ	**1,454**	**0,006190**
Fidelity National Information Service Inc.	FIS	**0,972**	**-0,000813**
Global Payments Inc.	GPN	**1,332**	**-0,000805**
Fiserv Inc.	FISV	**1,110**	**-0,000219**
Median		**1,231**	**-0,000219**

Figure 3.17: Comparable Levered Betas. Source: Personal Sources

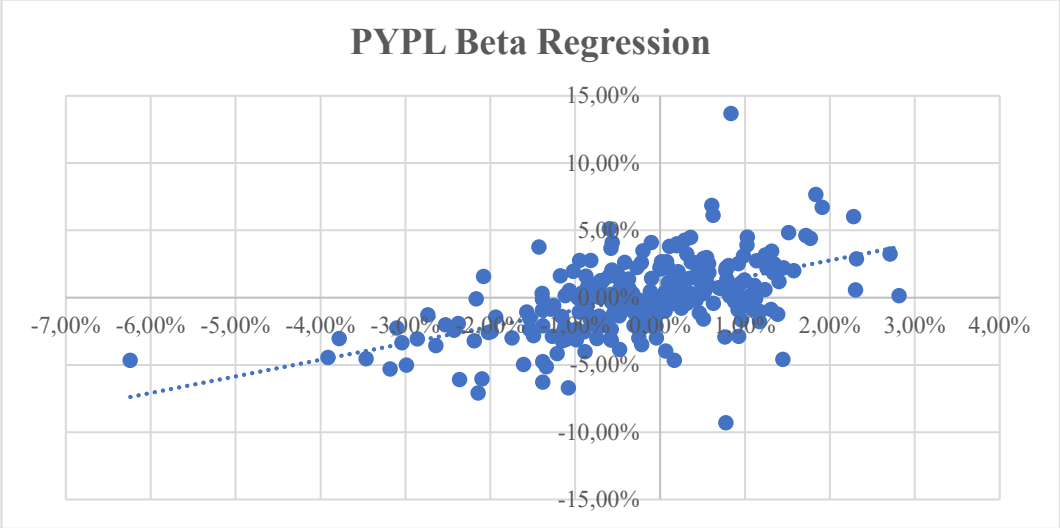

Figure 3.18: PayPal Beta Regression. Source: Personal Sources

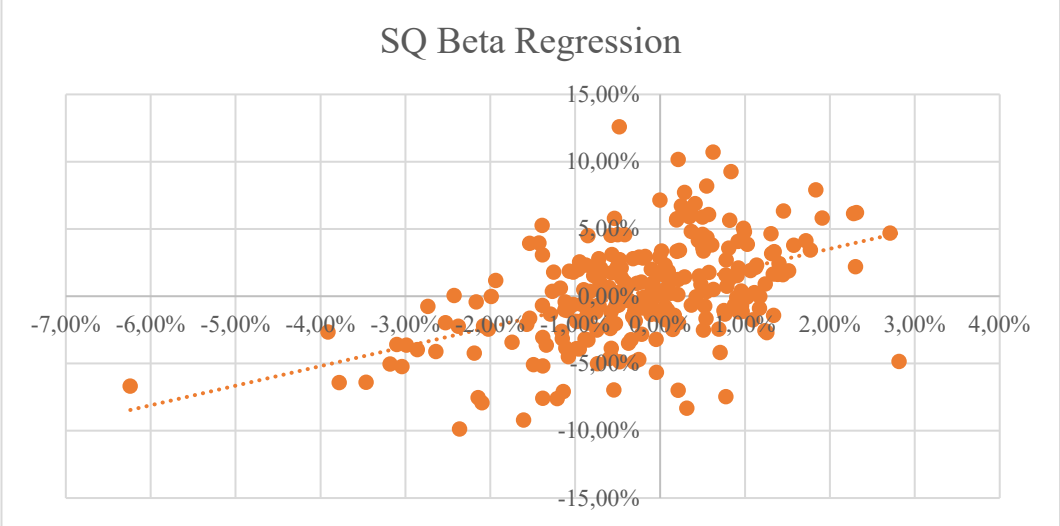

Figure 3.19: Block Beta Regression. Source: Personal Sources

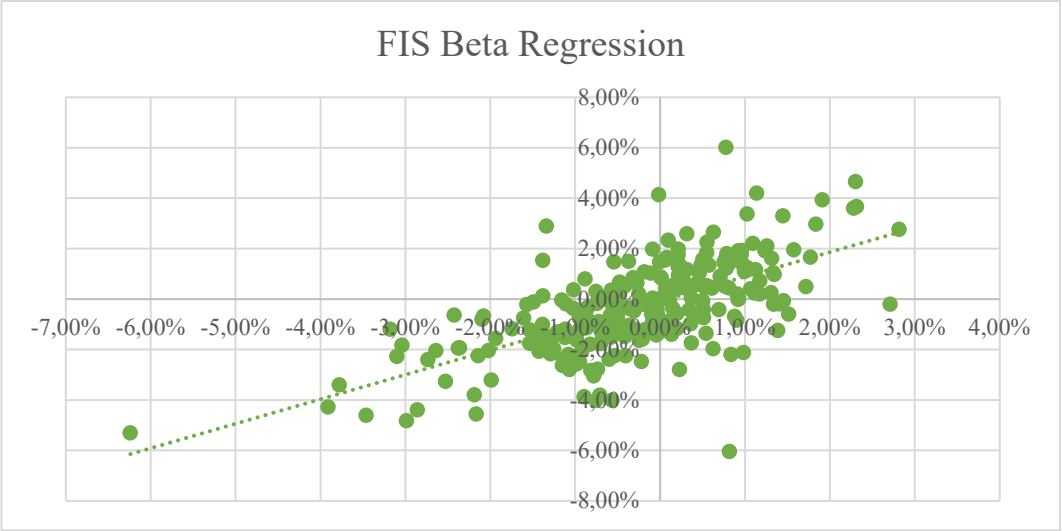

Figure 3.20: Fidelity Information Service Beta Regression. Source: Personal Sources

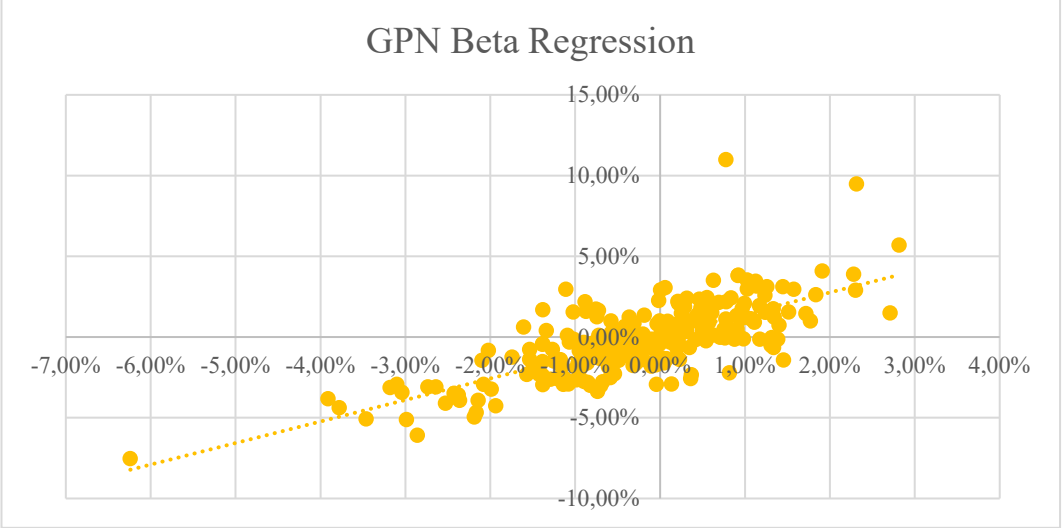

Figure 3.21: Global Payments Beta Regression. Source: Personal Sources

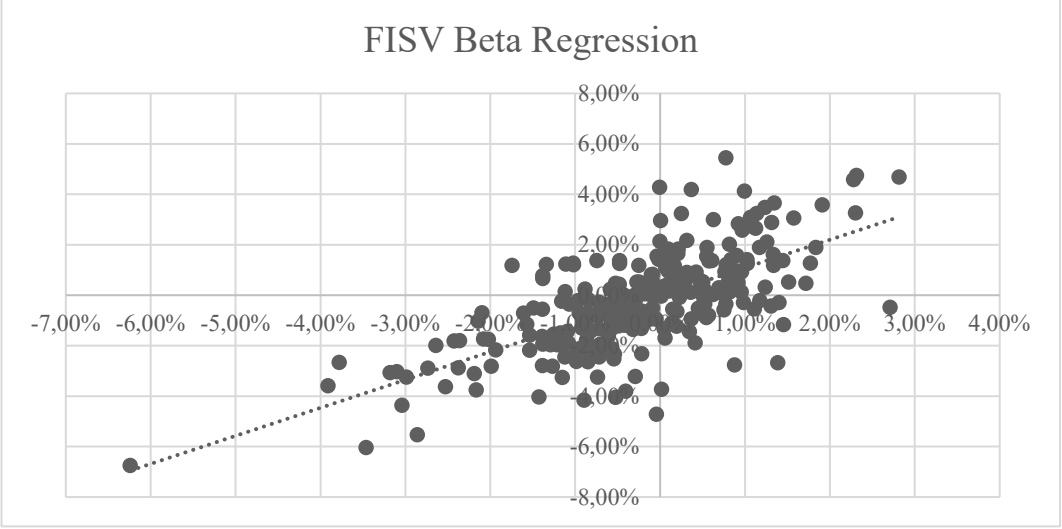

Figure 3.22: Fiserv Beta Regression. Source: Personal Sources

The second step was to calculate the *unlevered beta* of comparable companies. Unlevered beta, also known as asset beta, is a measure of a company's risk that is independent of its financing structure and financial leverage. It represents the systematic risk of a company's underlying assets and is calculated as the company's beta with all debt removed from the balance sheet. The unlevered beta's formula that I applied in my own calculation is the following:

$$\beta_U = \frac{\beta_L + \beta_D(1-\tau)\left(\frac{D}{E}\right)}{1 + (1-\tau)\left(\frac{D}{E}\right)}$$

where β_L is the beta of the company with its current debt, β_D is the beta debt and refers to the systematic risk of a company's debt, τ is the marginal tax rate, and D/E is the net debt to equity ratio.

The *beta levered* is the one that I already calculated through the beta regression of the daily excess returns. To compute de *beta debt,* I used the table shows in Figure 3.23 which is a summary of the average beta debt by rating and by maturity.

By Rating	*A and above*	*BBB*	*BB*	*B*	*CCC*
Avg. Beta	< 0.05	0.10	0.17	0.26	0.31
By Maturity	(BBB and above)	*1–5 Year*	*5–10 Year*	*10–15 Year*	> 15 *Year*
Avg. Beta		0.01	0.06	0.07	0.14

Source: S. Schaefer and I. Strebulaev, "Risk in Capital Structure Arbitrage," Stanford GSB working paper, 2009.

*Note that these are average debt betas across industries. We would expect debt betas to be lower (higher) for industries that are less (more) exposed to market risk. One simple way to approximate this difference is to scale the debt betas in Table 12.3 by the relative asset beta for the industry (see Figure 12.4 on page 425).

Figure 3.23: Average debt betas. Source: (Strebulaev, 2009)

In my analysis, I decided to use average beta by rating. Through Refinitiv, I considered the rating that each comparable received from rating companies in the last debt issue before 31/03/2021. The results are summarized in figure 3.24.

To calculate the *tax rate*, I considered the Income before Tax and Tax Income of the comparable for the period from 01/04/2020 to 31/03/2021 (as shown in Figure 3.26), i.e., the latest annual data available before the Coinbase listing. I calculated the tax rate as the ratio of Tax Income to Income before Tax. The results are summarized in Figure 3.25.

Finally, to calculate the *debt-to-equity ratio,* I used net debt, calculated as the difference between financial debt and cash and short-term investments, and market capitalization as of 31/03/2021. The results are summarized in Figure 3.25.

Company Name - Beta Debt							
Company Name	**Ticker**	**Levered Beta**	**Issuer Rating**	**Debt Beta**	**Debt**	**% Debt**	**% Equity**
PayPal Holdings Inc.	PYPL	1,23	A3	0,05	-4.144,00	-1%	101%
Block Inc.	SQ	1,45	BB	0,17	82,16	0%	100%
Fidelity National Information Service Inc.	FIS	0,97	BBB	0,1	15.111,00	15%	85%
Global Payments Inc.	GPN	1,33	BBB-	0,1	8.068,53	12%	88%
Fiserv Inc.	FISV	1,11	A-2	0,05	20.002,00	20%	80%

Figure 3.24: Debt betas calculation. Source: Personal Source

Company Name	**Ticker**	**Share Price**	**Outstanding shares**	**Market Cap**	**Income Before Tax**	**Income Taxes**	**Tax Rate**
Coinbase Global Inc.	*COIN*	*N/A*	*185,98*	*N/A*	*1.370,97*	*309,15*	*23%*
PayPal Holdings Inc.	PYPL	242,84	1.174,00	285.157,62	5.674,00	429,00	8%
Block Inc.	SQ	227,05	454,67	103.232,47	361,29	3,28	1%
Fidelity National Information Service Inc.	FIS	140,61	620,00	87.476,25	-191,00	30,00	-16%
Global Payments Inc.	GPN	201,58	295,16	58.484,34	636,47	82,33	13%
Fiserv Inc.	FISV	119,04	666,60	79.353,08	1.029,00	135,00	13%

Figure 3.25: Financial data – 31/03/2021. Source: Refinitv

Income Statement - 31/03/2021	30/06/2020	30/09/2020	31/12/2020	31/03/2021	Sum
Coinbase Global Inc.					
Income Before Tax	38,81	102,72	232,77	996,67	**1.370,97**
Income Taxes	6,55	21,42	55,98	225,20	**309,15**
PayPal Holdings Inc.					
Income Before Tax	1.799,00	1.144,00	1.859,00	872,00	**5.674,00**
Income Taxes	269,00	123,00	292,00	-255,00	**429,00**
Block Inc.					
Income Before Tax	-12,23	35,15	298,41	39,96	**361,29**
Income Taxes	-0,75	-1,37	4,45	0,95	**3,28**
Fidelity National Information Service Inc.					
Income Before Tax	32,00	143,00	102,00	-468,00	**-191,00**
Income Taxes	4,00	121,00	2,00	-97,00	**30,00**
Global Payments Inc.					
Income Before Tax	27,51	237,43	175,18	196,35	**636,47**
Income Taxes	0,84	42,83	17,98	20,68	**82,33**
Fiserv Inc.					
Income Before Tax	-8,00	381,00	336,00	320	**1.029,00**
Income Taxes	-27,00	124,00	20,00	18,00	**135,00**

Figure 3.26: Income Statement data – 31/03/2021. Source: Refinitv

Once I had collected all the necessary data, I calculated the unlevered beta of the comparable firms using the formula previously exposed and calculated the median in order to take into account all possible outliers. Figure 3.27 shows the results of the analysis.

Company Name	Ticker	Unlevered Beta
PayPal Holdings Inc.	PYPL	**1,25**
Block Inc.	SQ	**1,45**
Fidelity National Information Service Inc.	FIS	**0,83**
Global Payments Inc.	GPN	**1,20**
Fiserv Inc.	FISV	**0,92**
Median		**1,20**

Figure 3.27: Unlevered Beta. Source: Refinitv

Then, I proceeded to calculate the levered betas of Coinbase. The formula used is as follows:

$$\beta_L = \beta_U \left(1 + (1-\tau)\left(\frac{D}{E}\right)\right) - \beta_D(1-\tau)\left(\frac{D}{E}\right)$$

Of note regarding Coinbase is the absence of financial debt as of 03/31/2021. This implies a beta debt equal to 0 and a negative debt-to-equity. Figure 3.28 summarizes the results of the calculation.

Coinbase - 31/03/2021	Levered Beta
Unlevered Beta	1,20
Beta Debt	0,00
Net Debt	-1983,32
Common Equity	2304,41
Tax Rate	23%
Beta Levered	**0,40**

Figure 3.28: Coinbase's Levered Beta. Source: Refinitv

The third step was to calculate Coinbase's *cost of equity.* The cost of equity is the minimum return that a shareholder expects from an investment in a company's equity. It represents the rate of return required by investors to compensate for the risks associated with investing in a company's stock. The formula that I used to compute the calculation of the cost of equity is the following:

$$r_e = r_f + CRP + \beta_L(ERP)$$

Where r_f is the risk-free rate which at the date 13/04/2021 was equal to 0,84%, CRP is the country risk premium and ERP the equity risk premium. The *country risk premium* is the additional return required by investors as compensation for the perceived higher risk of investing in a country compared to a "risk-free" rate, such as a government bond. It reflects the political, economic, and financial stability of a country, as well as its growth prospects and other factors. The *equity risk premium* is the excess return required by investors for holding equities (stocks) over a risk-free rate, such as a government bond. The equity risk premium reflects the risk associated with investing in stocks compared to a low-risk investment, such as a Treasury bond. It takes into account factors such as the volatility of stock prices, the level of dividend payments, and the perceived stability of the company and the economy.

Damodaran 2021	Average CRP	Average ERP
Africa	5,59%	9,83%
Asia	3,49%	7,73%
Australia & New Zeland	1,48%	5,72%
Caribbean	3,80%	8,04%
Central and South America	4,90%	9,14%
Eastern Europe and Russia	3,16%	7,40%
Middle East	3,71%	7,95%
North America	0,00%	4,24%
Western Europe	0,97%	5,21%
Global Average	**3,01%**	**7,25%**

Figure 3.29: Damodaran's CRP and ERP. Source: (Damodaran, Discount Rate Estimation, 2021)

As country risk premium and equity risk premium I used of data provided by Aswath Damodaran in 2021 divided by geographic areas. Since Coinbase is a company with a presence in more than 100 countries, I decided to average the CRPs and ERPs to 2021 and, as a result, use an average CRP of 3.01% and an average ERP of 7.25%. Coinbase's *cost of equity* as of 04/13/2021 is *6.75%.* At this point,

in order to discount the cash flows I am going to calculate, I would have to find the Weighted Average Cost of Capital (WACC) from Coinbase but, because Coinbase had no debt at the date 31/03/2021 (last data available), the WACC will be equal to the cost of equity.

The last step is to calculate *free cash flows* and discount them at the cost of equity. Free Cash Flow (FCF) is a financial metric that measures the amount of cash a company generates after accounting for capital expenditures, depreciation & amortization, and change in Net Working Capital. It represents the cash that a company has available for distribution to its shareholders, debt repayment, or reinvestment in the business. The formula of free cash flow is the following:

$$Free\ Cash\ Flow = Unlevered\ Net\ Income - Net\ Investment - Increase\ in\ NWC$$

Where:

$$Unlevered\ Net\ Income = EBIT\ x\ (1 - \tau_C)$$

$$Net\ Investment = Capital\ Expenditure - Depreciation\ \&\ Amortization$$

In addition to the free cash flows generated by Coinbase, I also estimated a *terminal value* of $66.851,74 for 2026. Terminal value is a financial concept used in valuation models to estimate the future value of a company beyond the projection period. I decided to calculate it with the perpetuity method which assumes that the company will continue to generate cash flows at a constant growth rate forever, and the terminal value is calculated by dividing the expected cash flow in the final year of the projection period by the discount rate minus the constant growth rate. The perpetuity growth rate is typically between the historical inflation rate and the historical GDP growth rate. If you assume a perpetuity growth rate in excess of those value, you are basically saying that you expect the company's growth to outpace the economy's growth forever (WSO, 2009). For this reason, I estimated the perpetual growth rate as the average of the forecasted to 2026 of the Global GDP Growth Rate equal to 3,34% (Statista, Growth of the global gross domestic product (GDP) from 1980 to 2022, with forecasts until 2027, 2022) and the forecasted to 2026 of the Global Inflation Rate equal to 3,4% (Statista I. , 2022) estimated by Statista. The result is a perpetual growth rate of 3,37%.

The last thing to point out is that for 2021, I decided not to consider the entirety of the FCF but only the portion related to the fraction of the year from 13/04/2021 to 31/12/2021.

Timeline	31/12/2021	31/12/2022	31/12/2023	31/12/2024	31/12/2025	31/12/2026
Income before Tax	3.026,94	2.105,62	2.264,48	2.411,79	2.490,83	2.503,60
Tax Rate	20%	25%	25%	25%	25%	25%
Net Income after Tax	*3.624,12*	*1.879,23*	*2.024,52*	*2.159,25*	*2.231,54*	*2.243,21*
Plus: D&A	31,00	63,70	45,61	56,78	67,63	77,70
Less: CapEx	6,33	-25,28	29,98	-41,62	-40,40	-37,53
Less: Changes in NWC	-165,88	-178,76	-111,09	-110,66	-107,31	-98,93
Unlevered FCF	*3.495,57*	*1.738,89*	*1.989,02*	*2.063,75*	*2.151,46*	*2.184,45*
Year Fraction	0,72	1,00	1,00	1,00	1,00	1,00
Plus: Terminal Value						66.851,74
Total Unlevered FCF	**2.505,16**	**1.738,89**	**1.989,02**	**2.063,75**	**2.151,46**	**69.036,19**

Figure 3.30: Unlevered Free Cash Flow. Source: Personal Source

Once I got the Free Cash Flows, I discounted them to the cost of equity using Excel's "NPV" formula and got an Enterprise value of $59,039.39. Next, I subtracted of borrowings (which I remember being 0) and added the cash & short-term investment to get the equity value. Finally, I divided the obtained value by the number of shares as of 31/03/2021 and got a price of *$289,67* per share. I calculated the *final price* as an average between the price obtained with the comparable analysis and the price obtained with the DCF. The result is a price of *$273.43* per share. All the calculation are summarized in the Figure 3.31.

Stock Price	
EV	59.039,38
Debt	0,00
Cash	1.983,32
Equity	*61.022,70*
Outstanding Shares	210,66
DCF Price	***289,67***
Comparable Price	***257,19***
Final Price	**273,43**

Figure 3.31: Stock Price. Source: Personal Source

3.4 Coinbase's Direct Listing analysis

The process of Coinbase's listing began on December 28, 2020, when it officially announced its *intention to go public* on the Nasdaq stock exchange in the United States.

On February 25, 2021, Coinbase officially filed its request to go public with the Securities and Exchange Commission (SEC), the regulatory body for financial markets in the United States. The document filed was the so-called *S-1 SEC Form*, with the exclusive financial advice of advisors from major American investment banks such as Goldman Sachs, JP dMorgan Securities, and Allen & Co. in defining

the steps to be taken for the listing. The S-1 contains important information about the company, such as its business operations, financial performance, risks, management team, and proposed use of funds raised through the public offering. In the above prospectus, the company presented a strategic plan for the sale of 114.9 million Class A shares (Coinbase, 2021). In this regard, Coinbase distinguishes between two types of share classes:

- Class A common shares which entitle the holder to one vote.
- Class B ordinary shares which entitle the holder to 20 votes and are convertible, at any instant, into Class A ordinary shares.

On April 1, 2021, the *SEC approved Coinbase's listing* on the Nasdaq stock exchange. Before that, it faced allegations from the Commodity Futures Trading Commission (CFTC) of improper reporting of volumes and 'self-trading,' which involved the use of automated trading algorithms to create artificial volumes and demand, Coinbase was fined $6.5 million.

Finally, on April 14, 2021, Coinbase was officially listed on the Nasdaq stock exchange under the symbol 'COIN'. Stock exchange Nasdaq set its reference price at $250 a share, but shares started trading 52 per cent above that at $381 - valuing it at $99.6 billion. They then jumped to $410 before slipping back and closed their first day's trading at $328. Shares slipped back slightly again to $322.75 on the second day of trading (Denton, 2021).

3.4.1 The reasons for Coinbase's success

Coinbase's direct listing process was unique and unconventional compared to traditional IPOs. Instead of issuing new shares to raise capital, the company's existing shares were made available for public trading. This allowed early investors and employees to sell their shares to the public, rather than the company issuing new shares and diluting their ownership.

However, the great success of Coinbase's direct listing comes as no surprise. As described in the previous paragraphs, both through an analysis of the financial statements and the valuation process, we are talking about a company that was experiencing a *strong surge in performance* throughout 2021. Just look at the revenues from business activity, which, as shown in Figure 3.14, nearly tripled from $585.1 million in the last quarter of 2020 to $1.801 billion in the first quarter of 2021. Not only Coinbase has had a great increase in performance, but we can say

the same for the entire cryptocurrency market, as pointed out in the previous paragraphs.

Another characteristic that contributed to the success of the listing was undoubtedly Coinbase's *strong brand identity*. Since its inception in 2012, Coinbase has proven to be the perfect tool for simplifying the purchase of cryptocurrencies. Over the years, Coinbase has emerged as the most popular crypto exchange in the U.S. and soared in value alongside digital currencies Bitcoin and Ethereum. The service now has 56 million users, up from 43 million at the end of 2020 and 32 million the year before that (Levy, 2021).

In addition, Coinbase was *well known among investors* before its listing on the Nasdaq stock exchange in April 2021. As one of the largest and most popular cryptocurrency exchanges in the world, Coinbase had already raised significant funding from venture capital firms and private investors prior to going public. Additionally, its high-profile status within the cryptocurrency industry and its role in facilitating the buying and selling of popular cryptocurrencies like Bitcoin and Ethereum had also garnered widespread attention and interest from investors. Suffice it to say that in its latest private funding round in 2018, investors valued Coinbase at $8 billion (Levy, 2021).

These factors, combined also with the interest generated because of the *unconventional mode of listing*, are winners and have made Coinbase's listing a real success.

3.4.2 Stock volatility

In a direct listing, there is a potential for increased volatility risk due to the lack of underwriting banks to stabilize the stock price during the initial trading period. In a traditional initial public offering (IPO), underwriters typically set an initial price range, creating a psychological “fair value”, and help to stabilize the stock price by providing liquidity, support, and demand during the first days of trading. However, in a direct listing, the market determines the price of the stock without the involvement of underwriters, which can result in greater fluctuations in the stock price in the short-term. As a result, there is greater uncertainty and risk for investors in the early stages of trading in a direct listing (Royal, 2021).

On the first day of Coinbase's listing on the Nasdaq stock exchange, April 14, 2021, the stock price experienced significant fluctuations, with a high of over $429

and a low of about $310, ultimately closing at a price of $328.28. These fluctuations were attributed to the volatile nature of cryptocurrencies and the lack of stabilization from investment banks, as is the case with a traditional IPO. Here are the values of Coinbase stock price at different times during the trading day:

- 9:30 AM - $381(open)
- 10:04 AM - $429,54 (high)
- 10:14 AM - $310 (low)
- 4:00 PM - $328,28 (closed)

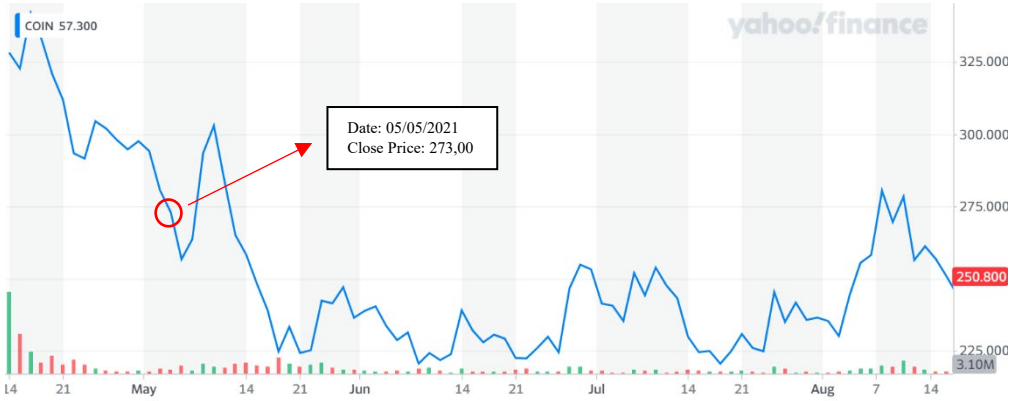

Figure 3.33: Coinbase daily prices. Source: (Yahoo, 2023)

After remaining fairly stable over the next few days, Coinbase's price began a rapid descent. This is not surprising since, according to my assessment, Coinbase's fair price should have been $273.43, a price actually reached no more than 20 days after listing on May 5, 2021, as shown in the Figure 3.33.

To understand how closely Coinbase correlates with the cryptocurrency market, especially with Bitcoin, one only needs to look at Figure 3.34. which compares Coinbase's daily % changes with Bitcoin's one. The correlation is striking and easily noticed.

Figure 3.34: Coinbase and Bitcoin daily price changes. Source: (Yahoo, 2023)

3.4.3 Coinbase's stock underpricing

As I already described in the previous chapter, direct listing can have several benefits for a company. One of the main advantages is that it can offer a more cost-effective and efficient alternative to the traditional IPO process, which involves underwriters and other intermediaries that charge significant fees. Direct listing can also offer more flexibility and control over the process, as the company can determine the timing and pricing of the offering, and existing shareholders can sell their shares directly to the public, rather than being subject to lock-up periods. Additionally, direct listing can increase transparency and improve access to liquidity for the company's shares.

The benefit I would like to analyze in more depth, as it represents one of my thesis questions, is that related to the phenomenon of underpricing. In fact, underpricing is a phenomenon that typically occurs in traditional initial public offerings (IPOs), where the offering price of the shares is set lower than the market price on the first day of trading, resulting in a pop in the share price. However, in a direct listing, there is no set offering price, as the shares are not offered to the public at a predetermined price. Instead, the shares are offered at the prevailing market price, which is determined by supply and demand on the first day of trading. As a result, it is less likely that there will be significant underpricing in a direct listing, as the market will set the price based on actual demand and supply of the shares.

The underprice formula is the following:

$$Underpricing = \frac{P_c - P_o}{P_o}$$

I decided to do a sensitivity analysis by comparing the closing price of $328.28 with the opening price ($381), the reference price ($250), and the price obtained with my valuation ($273,43). The results are summarized in Figure 3.35:

Coinbase Underpricing Analysis	Open Price	Close Price	Underpricing
Reference Price	250,00	328,28	**31,31%**
Valuation Price	273,43	328,28	**20,06%**
Open Price	381,00	328,28	**-13,84%**

Figure 3.35: Coinbase underpricing. Source: Personal Source

Unlike traditional IPOs, direct listings do not have a set price for the shares, as the market determines the price based on supply and demand. Therefore, there is no formal underpricing in a direct listing, as the company and its existing shareholders do not set an initial offering price. But, from the table we can see that if Coinbase had decided to list via IPO it would not have been able to gain from underpricing the shares. Specifically, if the initial price had been $250 it would have lost 31.31 percent underpricing, while if it had been $273.43, a price representing the intrinsic value of the company it would have lost 20.06 percent. This is another demonstration of the incredible success Coinbase has had through direct listing.

Conclusion

The goal of this thesis is answering two questions: is direct listing in degrees posing itself as a viable alternative to the classic IPO? And then, is direct listing able to reduce the phenomenon of IPO-type underpricing?

From the analysis of the theory in the first two chapters and the case study of Coinbase, I can say that direct listing presents itself as a very attractive alternative to the traditional IPO for several reasons. The first one is the lower costs: IPOs are expensive, with underwriters and other intermediaries taking a significant chunk of the proceeds. In a direct listing, companies can avoid these costs and potentially save millions of dollars. The second one is related to how the price is discovered: in a traditional IPO, underwriters determine the price of the shares, which may not accurately reflect market demand. In a direct listing, the market determines the price, providing a more transparent and fair valuation. In addition, direct listings offer more flexibility in terms of when and how much to sell, allowing companies to have more control over the timing and size of their public offering. Finally, it can reduce the lock-up period and avoid dilution because no new shares are issued, and existing shareholders maintain their ownership stake.

Overall, direct listings can offer companies a more cost-effective, flexible, and transparent alternative to traditional IPOs, while potentially providing better access to a wider range of investors. However, direct listings may not be suitable for all companies, and companies should carefully consider their options and seek the advice of experienced professionals. In fact, the direct listing can be a good option for companies that want to maintain control over their stock market listing and have a strong base of investors and a solid market presence. Instead, it could not be suitable for companies in growth stages or those that need capital to finance new projects or investments.

The success of Coinbase's direct listing is not surprising because the company already possessed all the necessary characteristics for this type of listing at the time. We are talking about a company that is a leader in the cryptocurrency exchange industry, in a market with strong growth and rapidly rising company performance, with a strong consensus among customers and investors thanks to its important brand identity.

By studying the phenomenon of underpricing in direct listings, thanks to the analysis of the Coinbase case and the theory in previous chapters, I can affirm that

it is one of the greatest benefits that this new listing method can offer. In the third chapter, I conducted an evaluation of Coinbase as of April 13, 2021, to understand its true intrinsic value the day before its listing. My analysis showed a price of $273.43, which was above the reference price of $250 but below the closing price of $328.38. From my analysis, Coinbase was overpriced on the first day of trading and in my opinion, due to the enthusiasm and curiosity it managed to generate among the investing public. However, this once again demonstrates how Coinbase's decision was absolutely successful. In fact, if the company had decided to go public through an IPO, the opening price would certainly have been similar to the reference price or to the price I found through the valuation. As a result, the gain from the markup of the shares would have gone to the underwriter, potentially causing a loss for Coinbase.

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Summary

Chapter 1: The Initial Public Offering (IPO)

1.1 Going Public

Why a company's shares ought to be listed can be summed up in four major ways:

1. To raise finance for expansion
2. To profit from the investments of early private investors
3. Company management discipline
4. Traded currency

The most frequent approach for a firm to go public is through an initial public offering (IPO).

1.2 What is an IPO

The initial public offering, often known as the IPO, is the method by which a business achieves the distribution of its securities among the general public (also known as the formation of the free float), which is necessary to get its securities listed on a regulated market.

According to the Italian Securities Act and its implementing regulations, the following authorities must be involved in the Italian IPO process: the Italian Securities and Exchange Commission (CONSOB) which is the agency in charge of managing routine trading, guaranteeing market transparency, and protecting investors. The Italian Stock Exchange (Borsa Italiana S.p.A.) which determines the pertinent listing requirements and confirms the issuers' adherence to them.

Then there are additional participants who support the company throughout all of the stages of its listing and make it happen. Players include: a sponsor, which could be a bank or investment company that has a track record of success in primary capital market operations, whether it is domestic, EU-based, or not. A global coordinator, which could be any investment bank, domestic or foreign, licensed to provide placement services under the Consolidated Banking Act (Legislative Decree 385/1993). And finally, a financial advisor an auditing firm, some legal advisors, and consultants

1.3 The IPO Process

The IPO process is divided into two main stages: the private phase and public phase.

The private phase of an initial public offering (IPO) is the period during which the company that is going public prepares for the offering and makes the necessary disclosures to potential investors. During this phase, the company works with its underwriters, accountants, lawyers, and other advisors to evaluate its financial statements, determine a valuation for the company, and draft a prospectus. Then, the company and its advisors also typically conduct a roadshow to meet with potential investors and market the offering. The private phase typically ends when the SEC declares the registration statement effective, which means that the company can begin selling shares to the public.

During the public phase, the company's shares are available for purchase by any member of the public who has a brokerage account. The shares are typically sold through underwriters, who are investment banks that help to market the shares and facilitate the purchase and sale of the shares. The underwriters set an initial price for the shares based on the demand for the offering and the price range specified in the prospectus. During the public phase, the company must comply with various reporting requirements and regulations, such as filing periodic financial reports with the SEC and disclosing material information to the public in a timely manner.

1.4 Valuation methodologies

Everyone participating in the IPO, from the investment bank to the individual investor, needs to have an understanding of the potential value of the business that plans to list. We have two main methodologies to evaluate the value of a company: the comparable analysis e the discounted cash flow method.

A comparable analysis is a method used to determine the value of an asset, such as a stock, by comparing it to similar assets that have already been sold in the market. This type of analysis is commonly used in the financial industry to estimate the fair market value of publicly traded stocks. The process of a comparable analysis typically involves identifying a group of similar companies, known as a "peer group," that operate in the same industry and have similar financial and operating characteristics as the company being analyzed. Once the peer group has been identified, a variety of financial metrics and ratios are calculated for each company in the group. Once the financial metrics have been calculated, the company being

analyzed is compared to its peers to determine whether it is overvalued or undervalued.

The discounted cash flow (DCF) method is a financial valuation technique that estimates the intrinsic value of an investment, such as a stock, bond, or company, based on its expected future cash flows. The DCF method is commonly used in corporate finance, investment banking, and equity research. The DCF method involves several steps:

1. Forecast future cash flows
2. Determine the discount rate
3. Discount the cash flows
4. Calculate the present value
5. Determine the intrinsic value

1.5 IPO pricing methods

One of the most important stages of the entire IPO procedure is the price creation step. The ability to price is crucial for multinational investment banks. There are three ways for IPO pricing: auction, fixed-price, and book-building.

In an auction IPO, the company being offered works with an underwriter to determine the number of shares to be offered and the bidding range for the shares. The bidding range typically reflects the company's estimated value and the underwriter's analysis of market demand. Potential investors are then invited to submit bids for the shares within the specified bidding range. Once the bidding period is closed, the underwriter collects and analyzes the bids to determine the clearing price, which is the price at which the demand for shares matches the supply of shares being offered.

The fixed price method is a traditional method used to price an initial public offering (IPO). To determine the price of the IPO, the underwriters typically analyze market demand for the shares, assess the company's financial health and prospects, and evaluate the risks associated with the investment. They then set a fixed price for the shares that they believe will be attractive to investors and will allow the company to raise the desired amount of capital. Once the price has been set, the shares are offered to the public at that price, and investors can purchase shares at the fixed price. The underwriters typically offer a portion of the shares to institutional investors, such as mutual funds and pension funds, and a portion to retail investors.

The book building method is a process used to price an initial public offering (IPO) that involves determining the price of the shares by soliciting bids from potential investors. In this method, the company being offered and its underwriters work together to build a "book" of investor interest in the shares. To start the book building process, the underwriters typically conduct a roadshow to market the shares to potential investors. After the roadshow, potential investors can submit bids for the shares within the indicative price range. The underwriters then compile and analyze the bids to determine the demand for the shares and to identify the clearing price, which is the price at which the shares will be sold. Once the clearing price has been determined, the shares are offered to investors at that price. Investors who submitted bids at or above the clearing price are allotted shares, and the remaining shares are distributed to other investors as determined by the underwriters.

1.6 The underpricing phenomenon

The underpricing phenomenon refers to the tendency for initial public offerings (IPOs) to be priced below their true market value, resulting in a sharp increase in the price of the stock on the first day of trading. Underpricing occurs for a variety of reasons, including:

1. Investor demand: The underwriters of an IPO want to ensure that the offering is fully subscribed, which means they need to generate strong investor demand for the shares. One way to do this is by setting the offering price below the expected market value of the shares, which can create a sense of urgency among investors to buy the shares.
2. Information asymmetry: IPOs are typically offered by companies with little public financial history, making it difficult for investors to accurately value the shares. The underwriters of the IPO may have access to more information about the company and its prospects than individual investors, which can make it easier for them to set a lower offering price.
3. Signal of quality: A low offering price may signal to investors that the company is confident in its future prospects and is willing to give up some potential profits in the short term to attract long-term investors. This can help to build investor confidence in the company and encourage more investors to buy the shares.

The underpricing phenomenon has both benefits and drawbacks. On the one hand, underpricing can generate strong investor demand for the shares and help to raise

more capital for the company. It can also create positive momentum for the stock in the short term and help to build investor confidence in the company. On the other hand, underpricing can result in the company receiving less capital than it could have otherwise and can result in dilution of existing shareholders. It can also create a short-term price bubble that can burst when the market corrects to the true value of the shares.

Chapter 2: The Direct Listing

2.1 Introduction to Direct Listing

A direct listing is a type of initial public offering (IPO) in which a company offers its shares to the public without the involvement of underwriters. In a direct listing, the company lists its shares on a stock exchange and allows them to be freely traded without issuing new shares or raising capital.

2.2 Regulatory framework

In December 2020, the U.S. Securities and Exchange Commission (SEC) approved a new regulatory framework for direct listings. The new rules provide companies with greater flexibility to raise capital and go public without the traditional underwriting process. Under the new framework, companies can use a direct listing to raise primary capital, rather than just allowing existing shareholders to sell their shares. To do so, the company must meet certain requirements, including:

1. Meeting the eligibility criteria for listing on the stock exchange where it plans to list its shares.
2. Complying with the SEC's reporting requirements for public companies.
3. Engaging a registered broker-dealer to facilitate the opening trades in its shares.
4. Conducting a public offering of its shares.
5. Using a "price discovery mechanism" to determine the opening price of its shares on the exchange.

In addition, companies can now raise capital in a direct listing by selling shares to the public at market prices. Previously, companies were only allowed to sell shares at a fixed price in a direct listing. The new regulatory framework also includes provisions to protect investors, including requiring companies to provide

certain disclosures about their financial performance and risks, and ensuring that the opening price of the shares is determined through a fair and transparent process.

2.3 The Direct Listing process

The amount of time necessary to prepare a direct listing is variable: it can take a few days or a few months. Generally, there are three stages of a direct listing process: preparation, compliance filing, and selling.

The preparation phase of a direct listing involves several key steps that a company must take to ensure a successful offering. These steps may include: Establishing eligibility: The company must meet the eligibility criteria for listing on the stock exchange where it plans to list its shares. This may include meeting minimum financial and governance requirements and complying with certain rules and regulations.

1. Assembling a team: The company should assemble a team of advisors and experts, including legal counsel, accountants, and financial advisors, to help navigate the direct listing process and ensure compliance with applicable laws and regulations.
2. Conducting due diligence: The company should conduct a thorough review of its financial statements, operations, and other key information to ensure that it is prepared to disclose this information to investors.
3. Drafting registration statement: The company should prepare a registration statement that will be filed with the Securities and Exchange Commission (SEC) and made available to investors. This statement will include detailed information about the company's business, financial performance, risks, and other key details.
4. Determining the opening price: The company must determine the opening price of its shares, which will be based on a "price discovery mechanism" that is used to establish the market price of the shares.

The compliance filing phase of a direct listing involves preparing and filing the necessary documents with the Securities and Exchange Commission (SEC) and other regulatory bodies to ensure compliance with applicable laws and regulations. This phase typically occurs in the weeks leading up to the direct listing. The key documents that must be filed during the compliance filing phase include:

1. Registration statement: This is the primary document that the company must file with the SEC to register its shares for public sale. The registration

statement provides detailed information about the company's business, financial performance, risks, and other key details. The registration statement must be reviewed and approved by the SEC before the direct listing can proceed.

2. Prospectus: This is a document that provides information to potential investors about the company and the direct listing. The prospectus must be filed with the SEC and made available to investors prior to the direct listing.
3. Other filings: The company may also need to file other documents and disclosures with regulatory bodies, such as state securities regulators, stock exchanges, and self-regulatory organizations.

Once all necessary filings have been made and approved by the SEC and other regulatory bodies, the company can proceed with the direct listing.

The last phase of a direct listing is the actual trading of the company's shares on the stock exchange. Once the registration statement has been declared effective by the Securities and Exchange Commission (SEC) and any necessary filings and disclosures have been completed, the company's shares can be listed for trading on the exchange. Throughout the last phase of the direct listing, the company will be closely monitoring the trading activity of its shares and working with its advisors and the stock exchange to ensure that the direct listing proceeds smoothly and in compliance with all applicable laws and regulations. The last phase of a direct listing can be a period of significant volatility and uncertainty, but it also represents an important milestone for the company and its stakeholders as it transitions to life as a publicly traded company.

2.4 Pros and cons of Direct Listing

The main advantages of a direct listing compared to a traditional initial public offering (IPO) include:

1. Immediate Benefits to Existing Shareholders: for existing shareholders who decide to sell, having the opportunity to do so at market pricing on the first day of a listing might be quite advantageous. This advantage, however, is predicated on their being a strong enough market for the shares being offered for resale.
2. Potentially Wider Initial Market Participation: Any potential shareholders may place orders with their preferred broker-dealer in a direct listing at any

price they deem appropriate, and these orders constitute a part of the initial reference price-setting procedure.

3. Flexibility in Timing of Public Announcement: a direct listing enables a company to customize marketing initiatives to the particular considerations behind the direct listing and avoid the rigidity of the usual roadshow undertaken for a set amount of time after the publicly announced launch of an IPO.
4. Brand Visibility: any direct listing with moderate performance will probably garner considerable interest from market players and associated media, as direct listings are still a unique concept in U.S. capital markets. When the listing company has a well-known brand name, this effect is amplified.
5. No Underwriting Fees: By enabling businesses to avoid underwriting discounts and commissions on the shares offered in the IPO, a direct listing can help them save money
6. No Lock-up Agreements.

While direct listings can offer several advantages, they also come with some challenges and potential drawbacks, including:

1. Establishing a Price Range and Initial Reference Price: in a direct listing, the initial price of the shares is determined by supply and demand, which means that the company may have limited control over the final pricing. This could result in the shares being priced lower than the company had hoped, which could impact the valuation and liquidity of the shares.
2. Financial Advisors and their Independence: the financial advisor that values the "publicly held" shares and assists the applicable exchange's market maker or specialists, as applicable, must be independent, which under the relevant rules disqualifies any broker-dealer that has provided investment banking services to the listing company within the 12 months preceding the date of the valuation.
3. Shares to be Registered: all shares subject to registration may be freely resold pursuant to the registration statement only as long as the registration statement remains effective and current. The company will typically bear the related costs.
4. Direct Listing-specific Risks: company considering a direct listing should contemplate whether its investor relations apparatus is capable of playing an

outsized role in coordinating marketing efforts and outreach to potential investors. Notably, in a direct listing, the listing company's management plays no role in setting the initial reference price, and certain market-making activities conducted by the underwriting syndicate may be unavailable. This may present unacceptable risks for companies that may otherwise be poised to undertake a direct listing.

2.5 IPO vs Direct Listing and underpricing

The major difference between a direct listing and an IPO is that one sells existing stocks while the other issues new stock shares. In a direct listing, employees and investors sell their existing stocks to the public. In an IPO, a company sells part of the company by issuing new stocks. The goal of companies that become public through a direct listing is not focused on raising additional capital, which is why new shares are not necessary.

The second difference is that in a direct listing there are no underwriters. The process of using underwriters and selling at a discount increases the time and cost for a company that is issuing new shares. Direct Listing avoid this issue.

Lastly, the direct listing process also does not have the "lock-up" period that applies to IPOs.

Underpricing in the context of direct listings refers to the phenomenon where the opening price of the company's shares is set lower than the price at which they were last traded on the private market. This can result in a surge in demand for the company's shares and can lead to significant gains for investors who are able to buy shares at the lower opening price.

Unlike traditional IPOs, direct listings do not involve underwriters or other intermediaries who help to set the initial price of the shares. Instead, the opening price is determined by supply and demand on the public market. This can make it more difficult for companies to accurately price their shares and can result in some degree of uncertainty and risk during the listing process.

Overall, while underpricing in a direct listing can result in significant gains for investors, it also comes with some risks and potential downsides. Companies considering a direct listing should carefully evaluate their options and work closely with their advisors to determine the best strategy for their specific situation.

Chapter 3: The Coinbase Global case

3.1 What are cryptocurrencies

Cryptocurrencies are digital or virtual currencies that use encryption techniques to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank. Cryptocurrencies are decentralized and operate on a peer-to-peer network, allowing individuals to send and receive funds without the need for intermediaries like banks. The most well-known cryptocurrency is Bitcoin, but there are many others, including Ethereum, Litecoin, Ripple, and Tether, among others. Cryptocurrencies are often traded on cryptocurrency exchanges, and their value can be highly volatile due to factors such as market demand, adoption, and regulatory changes.

3.2 Introduction to Coinbase

Coinbase is a popular cryptocurrency exchange and digital wallet platform that allows users to buy, sell, and store various cryptocurrencies. It was founded in 2012 and is headquartered in San Francisco, California.

Coinbase offers a user-friendly platform for buying and selling cryptocurrencies, making it easy for people who are new to the world of cryptocurrencies to get started. Users can connect their bank accounts or credit cards to their Coinbase account, and buy or sell a variety of cryptocurrencies, including Bitcoin, Ethereum, Litecoin, Bitcoin Cash, and more.

To better understand the financial health and economic performance of Coinbase, I decided to conduct an analysis of its balance sheet and income statement. I based the analysis on data on the "Refinitiv" platform for a period of three years, from 2019 to 2021. The financial analysis described Coinbase as a company with rapidly rising performance following the cryptocurrency boom during the same period, solid and with excellent ability to meet financial obligations.

Then, I forecasted Coinbase’s financial by estimating future financial performance based on historical financial data and information about current and expected future conditions. I forecasted the revenues by following the estimates that Statista made on cryptocurrencies segment’s revenues and the operating costs as percentage of total revenues adjusted for the global inflation rate estimated by Statista.

3.3 Coinbase stock valuation

To perform the evaluation of Coinbase, I started from the comparable analysis. To choose comparable companies I helped myself with Refinitv's technology. Refinitv offers this tool called "Starmine Peers" which is generated through an algorithm that combines competitor lists provided in fillings, analyst cross coverage, business classification and revenue proximity. The comparable companies chosen are Block, PayPal, Fiserv, Global Payments, and Fidelity National Information Services. Once I had the set of comparable companies, I could perform my comparable analysis. The multiples I decided to consider are three and they are: Enterprise Value to Total Revenues (EV/Total Revenues), Enterprise Value to EBITDA (EV/EBITDA) and Price-Earnings ratio (Price/Earnings). After calculating the median of these multiples, I calculated the Coinbase's prices, I averaged them and finally I found a price equal to $257,19.

To perform the discounted cash flow, the first step I took was to calculate the levered betas of comparable companies. To compute the levered betas, I performed a beta regression by obtained the comparable companies' daily closing prices from Refinitiv for a period from 13/04/2020 to 13/04/2021, i.e., the day before the Coinbase listing. As market benchmark, I chose the S&P500, all the companies considered being listed in the United States, and of the latter I also obtained the daily closing prices for the same reference period, while as the risk-free rate, I decided to consider the yield to maturity of the 5-Years U.S. Treasury Notes. The second step was to calculate the unlevered beta of comparable companies. The unlevered beta's formula that I applied in my own calculation is the following:

$$\beta_U = \frac{\beta_L + \beta_D(1-\tau)\left(\frac{D}{E}\right)}{1+(1-\tau)\left(\frac{D}{E}\right)}$$

Once I had collected all the necessary data, I calculated the unlevered beta of the comparable firms using the formula previously exposed and calculated the median in order to take into account all possible outliers. The result is an unlevered beta equal to 1,20.

Then, I proceeded to calculate the levered betas of Coinbase. The formula used is as follows:

$$\beta_L = \beta_U\left(1+(1-\tau)\left(\frac{D}{E}\right)\right) - \beta_D(1-\tau)\left(\frac{D}{E}\right)$$

Of note regarding Coinbase is the absence of financial debt as of 03/31/2021. This implies a beta debt equal to 0 and a negative debt-to-equity. The result is a levered beta equal to 0,40. The third step was to calculate Coinbase's cost of equity. The formula that I used to compute the calculation of the cost of equity is the following:

$$r_e = r_f + CRP + \beta_L(ERP)$$

Where r_f is the risk-free rate which at the date 13/04/2021 was equal to 0,84%, CRP is the country risk premium and ERP the equity risk premium. As country risk premium and equity risk premium I used of data provided by Aswath Damodaran in 2021 divided by geographic areas. Since Coinbase is a company with a presence in more than 100 countries, I decided to average the CRPs and ERPs to 2021 and, as a result, use an average CRP of 3.01% and an average ERP of 7.25%. Coinbase's cost of equity as of 04/13/2021 is 6.75%. Because Coinbase had no debt at the date 31/03/2021 (last data available), the WACC will be equal to the cost of equity.

The last step is to calculate free cash flows and discount them at the cost of equity. The formula of free cash flow is the following:

$$Free\ Cash\ Flow = Unlevered\ Net\ Income - Net\ Investment - Increase\ in\ NWC$$

In addition to the free cash flows generated by Coinbase, I also estimated a terminal value of $66.851,74 for 2026. Once I got the Free Cash Flows, I discounted them to the cost of equity using Excel's "NPV" formula and got an Enterprise value of $59,039.39. Next, I subtracted of borrowings (which I remember being 0) and added the cash & short-term investment to get the equity value. Finally, I divided the obtained value by the number of shares as of 31/03/2021 and got a price of $289,67 per share. I calculated the final price as an average between the price obtained with the comparable analysis and the price obtained with the DCF. The result is a price of $273.43 per share.

3.4 Coinbase's Direct Listing analysis

Here are the main steps of Coinbase's listing process:

1. Announcement of intention to go public: On December 28, 2020, Coinbase announced its intention to go public on the US Nasdaq stock exchange.
2. Filing of the listing application: On February 25, 2021, Coinbase officially filed its listing application with the Securities and Exchange Commission (SEC), the US financial markets regulatory body.

3. SEC approval: On April 1, 2021, the SEC approved Coinbase's listing on the Nasdaq exchange.
4. Offer price estimate: On April 13, 2021, Coinbase set an estimated offering price of its shares at $250, resulting in a market valuation of around $65 billion.
5. Listing date: On April 14, 2021, Coinbase was officially listed on the Nasdaq exchange under the symbol "COIN".
6. Price fluctuations: The price of Coinbase's shares experienced significant fluctuations in the early days of trading, rising 31% above the offering price on the first day, but then dropping in the following days.

The great success of Coinbase's direct listing comes as no surprise. In fact, we are talking about a company that was experiencing a strong surge in performance throughout 2021. Just look at the revenues from business activity, which, as shown in Figure 3.14, nearly tripled from $585.1 million in the last quarter of 2020 to $1.801 billion in the first quarter of 2021. Another characteristic that contributed to the success of the listing was undoubtedly Coinbase's strong brand identity. Over the years, Coinbase has emerged as the most popular crypto exchange in the U.S. and soared in value alongside digital currencies Bitcoin and Ethereum. The service now has 56 million users, up from 43 million at the end of 2020 and 32 million the year before that. In addition, Coinbase was well known among investors before its listing on the Nasdaq stock exchange in April 2021. As one of the largest and most popular cryptocurrency exchanges in the world, Coinbase had already raised significant funding from venture capital firms and private investors prior to going public. Suffice it to say that in its latest private funding round in 2018, investors valued Coinbase at $8 billion. These factors, combined also with the interest generated because of the unconventional mode of listing, are winners and have made Coinbase's listing a real success.

On the first day of Coinbase's listing on the Nasdaq stock exchange, April 14, 2021, the stock price experienced significant fluctuations, with a high of over $429 and a low of about $310, ultimately closing at a price of $328.28. These fluctuations were attributed to the volatile nature of cryptocurrencies and the lack of stabilization from investment banks, as is the case with a traditional IPO. After remaining fairly stable over the next few days, Coinbase's price began a rapid descent. This is not surprising since, according to my assessment, Coinbase's fair price should have

been $273.43, a price actually reached no more than 20 days after listing on May 5, 2021.

To understand the effect on underpricing, I decided to do a sensitivity analysis by comparing the closing price of $328.28 with the opening price ($381), the reference price ($250), and the price obtained with my valuation ($273,43). Unlike traditional IPOs, direct listings do not have a set price for the shares, as the market determines the price based on supply and demand. Therefore, there is no formal underpricing in a direct listing, as the company and its existing shareholders do not set an initial offering price. But, from the table we can see that if Coinbase had decided to list via IPO it would not have been able to gain from underpricing the shares. Specifically, if the initial price had been $250 it would have lost 31.31 percent underpricing, while if it had been $273.43, a price representing the intrinsic value of the company it would have lost 20.06 percent. This is another demonstration of the incredible success Coinbase has had through direct listing.