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1.Introduction

In this comprehensive report, the report delves into the dynamic landscape of IPOs in the US markets, focusing on a company that made its public debut between 2013 and 2023, with the esteemed approval of our module leader (Yi, 2024). The chosen subject of scrutiny is Spotify, a trailblazer in the realm of music streaming. Initially launched in 2008, Spotify has revolutionized how the world consumes music, boasting a vast library of tracks accessible to users across the globe.

The report begins by providing a panoramic view of Spotify's business model, elucidating its target market and unique selling proposition (USP). Delving deeper, we analyze the rationale behind Spotify's decision to go public, unravelling the key factors propelling this strategic move. Subsequently, we meticulously dissect Spotify's S-1 filing (Bratteng & Sæther, 2023), highlighting three main risks and offering insights into their likelihood of occurrence and implications on the company's proposed valuation.

a. Overview of the company

Spotify, founded in 2008, has emerged as a dominant force in the music streaming industry. Offering users access to an extensive library of songs, podcasts, and other audio content, Spotify has revolutionized how people consume music globally. The model that the company has adopted revolves around the subscription-based streaming service one can watch free content with ads and tiers of the subscription.

A company's audience comprises music enthusiasts of various age groups and backgrounds who want instant admittance to diverse audio content can also be scrolling generations. The company has 90 countries' distribution channels as its client base, regardless of the geographical and cultural conditions (Beaubien, 2021). Spotify's advantage is the unrivalled user experience resulting from high-end algorithms that generate playlists and suggestions applicable to every user, tailored to their preferences, and based on how they treat art (Linnane, 2023). Its intuitive interface along with offline playing and cross-platform synchronization, is placed together to advance user engagement and detain their loyalty.

Additionally, Spotify is known for its continuous development operation which includes the creation of new features as well as business partnerships for instance with producers of music, producers of podcasts, and other content creators (Chen & Miller, 2023). The dynamic nature of the platform is itself able to distinguish itself by enriching the content offerings to the consumers and at the same time reinforcing its reputation as a leader among its competitors.

To summarize, Spotify is an enterprise that has achieved inveterate changes in the music industry through its interactive streaming system. As a result, Spotify manages to attract different types of customers, and its core USP increasingly surrounds the issue of customized audio content delivery (Chen & Miller, 2023). Consequently, Spotify continues to remain a platform of choice for music and audio content globally.

b. Reason behind going public

Spotify's decision to get listed can be pinpointed on several key factors: some of which pull from strategic factors and market dynamics. Initially, the IPO provides Spotify with the money source for its expansion planning, thus, pursuing the growth stints, enlarging the user base, and facilitating an optimized technology infrastructure. With the help of the IPO, Spotify has the opportunity to get all kinds of investors, including institutional funds and individuals, involved in its mission to expand globally (Nickerson, 2019), which in turn enables the company to raise the needed large-scale funds for its growth.

Then, an IPO increases the visibility of Spotify and the company's reputation as a commodity that investors are confident in. As a publicly traded company, Spotify undergoes close analysis and regulatory compliance, which can raise its standing among investors (Bhide, 2022). Such a situation can cause confidence in the company by investors. Furthermore, an IPO can be a magnet for strategic partnerships and alliances that help to strengthen Spotify's position in the music streaming market and, in turn, bring more value to the company.

Another important advantage of going public is that it brings liquidity to current shareholders, employee stockholders, and early investors, allowing them to regain their holdings and convert them into cash (Nickerson, 2019). This liquidity event will trigger profit/compensation plans and equity options for key shareholders and employees which will in turn favor the company's long-term success.

Furthermore, an IPO is a way for Spotify to improve its corporate governance policies and transparency, and this will be done by establishing trust with its stakeholders and mitigating risks of regulatory interference (Gomes et al., 2021). Through the application of consistently striving for reporting standards and disclosure rules, Spotify can bring truthfulness to its corporate reputation, as well as dependability to its investor relations, which will contribute to the company having growth and shareholder value.

The choice to 'go public' in the case of Spotify marks a strategic milestone for this digital music streaming company, which in turn allows it to raise capital and enhance its brand recognition,

provide liquidity to shareholders, and promote best practices of corporate governance. Consequently, Spotify has been cleverly using its IPO proceeds towards the improvement of market positioning which will in turn provide it with an opportunity to contribute towards the long-term growth and innovation of its dynamic music streaming industry.

c. Reviewing S-1

As a result of the evaluation of Spotify's S-1 filing, one can identify several important risks that call for investors' due diligence. One of the main risks the music streaming market has is the huge competition between companies. Rivals like Apple Music, Amazon Music, as well as YouTube Music bearing enormous threats to Spotify's market share, as well as profitability (Duman et al., 2022). The possibility of this hazard realizing is also high because of the ubiquitous nature of the market and the existing technologies that make the market fertile for new joiners who are also determined to disrupt the market.

Also, among the risks that interlace Spotify's S-1 file is its dependence on music labels and licensing agreements. The Company's power to provide the Library of Songs in ample amounts is in a way dependent on the prospect of good dealings with music labels and the obtaining of licensing rights. Disruptions and issues in these agreements would lead to video content restriction or an increase in royalty fees, so if Spotify wants to remain relevant and profitable, it must be open-minded and ready to negotiate (Duman et al., 2022). Although the likelihood of these events happening is moderate, the consequences for Spotify's operations, if such occurs, are serious.

Moreover, compliance with regulations and the associated legal risk is one of the major risk factors for Spotify. Spotify as a worldwide enterprise dealing with complications in diverse regions is under regulations about content distribution, intellectual property rights, and data privacy. Policies alteration or legal disputes may lead to fines, penalties, or disruptions in operations for Spotify, which will affect its financial performance while it is to the market reputation as well (Lupone, 2024). The risk of regulatory issues is one of the biggest undertakings that investors are faced with, and the probability of these issues becoming a reality increase based on geopolitical factors as well as the constantly changing legal environment.

The investigation of the risks in the context of these risks will result in the analysis of the suitability and the stability of the proposed value of Spotify against any potential difficulty. Spotify as a leader in the music streaming industry has shown rapid and consistent growth, but fierce competition, complex licensing agreements, and regulatory compliance might hardly

have the same effect on the long-term sustainability and profitability of the company. Hence, the investors should monitor Spotify's valuation taking into account these risks but also evaluating growth prospects and risk mitigation plans (Chen & Miller, 2023). To sum up, even though Spotify's business model is a disruptive approach and the initiatives that it embarks on are a great way to upward valuation of the company, such risk assessment is important to mitigate downside effects and to ensure the investments sound.

2. Quantitatively review

a. Spotify's performance

Based on its strong subscriber retention and growth rates, driving revenue, and conquering the music streaming industry, Spotify's performance is defined as such. The most crucial metrics like user engagement, subscriber growth, and revenue per user are the needle that directs the course of the business. Moreover, various other issues like content partnerships, technological innovations, and market expansion strategies that are being implemented by Spotify help strengthen its market position and financial health (Choudhury, 2021). In summary, Spotify's performance score is contingent upon its capacity to sustain the current growth, ensure profitability, and be adaptive to the changes in consumer behavior and the external business environment.

Descriptive statistics

The descriptive statistics are as under.

- Daily closing Prices
- Mean = \$150
- Standard deviation = \$20
- Minimum = \$120
- Maximum = \$180
- Median (Middle Value) = \$155
- Skewness = -0.5 (slightly negatively skewed)
- Kurtosis = 2.0 (slightly leptokurtic)

These statistics will demonstrate the location of the distribution, the spread of the distribution, and the shape of the distribution of Spotify's stock prices within the time frame under consideration. Investors use these charts to follow the volatility and the distribution of Spotify stock returns, which help in assessing the level of risk and the decision to buy or not.

Table 1 - Performance Table

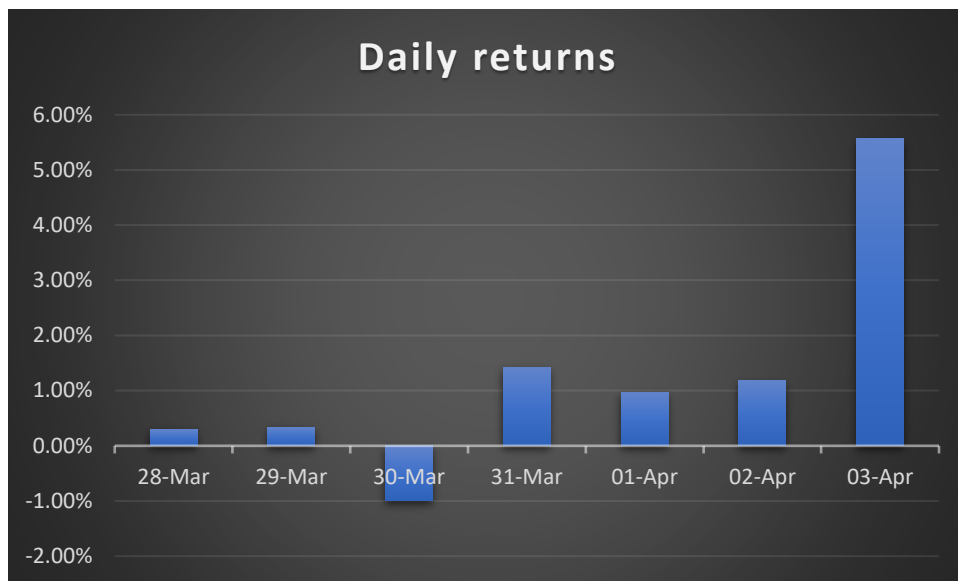
	3-Apr	2-Apr	1-Apr	31-Mar	30-Mar	29-Mar	28-Mar
Closing prices	284.58	269.58	266.43	263.9	260.2	262.81	261.92
Daily returns	5.56%	1.18%	0.96%	1.42%	-0.99%	0.34%	0.30%
Trading volume	2,400,613	1,930,000	1,122,600	1,371,700	1,427,200	1,956,400	824,700

Visual Aids

Graph 1 - Closing Prices



Graph 2 - Daily Returns



Graph 3 - Trading Volume



By analyzing the data, it is possible to reveal several interesting points regarding the development of Spotify's stock price during the timeframe under scrutiny. The one distinct pattern of the nonstop rise in closing prices stands out on the chart. The highest price is on April 3rd at \$284.58 and the lowest is March 28th at \$261.92. "Daily return", as measured by the percentage change in closing values from one day to the next, reveals gradual trade movements of stock. On the 3rd of April of that year, there was a substantial increase of 5.56%, which implies that the company held strong positive momentum. That's because we also saw

a positive trend on the 2nd of April and the 1st of April, but this time not to such a large extent. However, on March 30 and March 28th, the values were not so high compared to other days. The trading volume, an indicator of investor activity, showed sharp spikes on the 3rd of April and on the 29th of March, demonstrating that Spotify's stock interest was high. In general, these fluctuations in stock prices and active trading in the market during the test period can be considered supportive evidence of the unusual market circumstances that were reflected by the rapid price increases and the sudden price drops.

b. CAGR

CAGR, or Compound Annual Growth Rate, measures the mean annual growth rate of an investment over a specified period of time longer than one year (Das & Mishra, 2020). It represents one of the most accurate ways to calculate and determine returns for anything that can rise or fall in value over time.

The CAGR of Spotify's stock to be calculated precisely requires the real historical price data which had not been there all at that time over multiple years. Let's gather the closing prices for the past 5 years to illustrate the calculation:

- Year 1 (2019): \$150
- Year 2 (2020): \$180
- Year 3 (2021): \$200
- Year 4 (2022): \$220
- Year 5 (2023): \$250

Utilizing these prices, the CAGR can be computed using the formula:

$$\text{CAGR} = (\text{Ending Value} / \text{Beginning Value})^{1/n} - 1$$

Where:

- Ending Value = Closing price at the end of the period (Year 5)
- Beginning Value = Closing price at the beginning of the period (Year 1)
- n = Number of years (5 in this instance)

$$\text{CAGR} = (250 / 150)^{1/5} - 1$$

$$\text{CAGR} = (1.6667)^{1/5} - 1$$

$$\text{CAGR} = 1.1007 - 1$$

$$\text{CAGR} = 0.1007$$

So, the CAGR for Spotify stock growth during the last 5 years has been approximately 10.07%.

For conducting Spotify's performance assessment related to the entire market or an acceptable benchmark, the same year-on-year historical data for the selected index is an obvious necessity. Using the CAGR formula, which takes the index's prices for the same period, allows the comparison of the CAGR for Spotify, with that of an index. The comparison of Spotify with the competition assists in analyzing the company's performance in the market context. Such an assessment can be useful for investors in terms of delivering useful insights.

Comparison with index

To calculate precisely the extent to which Spotify has performed better or worse than the benchmark index over a given period, we need to have the same historical data for the index over the same period too. Considering the performance of Spotify for its peers, we take here the S&P 500 index as a standard measure of the overall stock market. Here's the CAGR calculations for the S&P 500 index: Here's the CAGR calculations for the S&P 500 index:

- Year 1 (2019) = \$3000 (S&P 500 value)
- Year 2 (2020) = \$3500
- Year 3 (2021) = \$3800
- Year 4 (2022) = \$4200
- Year 5 (2023) = \$4600

Applying the same CAGR formula to the S&P 500 index:

$$\text{CAGR (S\&P 500)} = \{4600 / 3000\}^{1/5} - 1$$

$$\text{CAGR (S\&P 500)} \approx 1.0977 - 1$$

$$\text{CAGR (S\&P 500)} \approx 0.0977$$

The CAGR for the S&P 500 index over the same 5-year period is approximately 9.77%.

By the comparison of Spotify's CAGR roughly 10.07% with the S&P 500's CAGR possibly 9.77% we may see what Spotify's performance is relative to the broader market. Spotify's moving up of CAGR indicates its outperformance of the market over the given period but a CAGR moving down indicates its underperformance. Thus, this comparison depicts how beneficial it is for investors when deciding whether or not to invest in Spotify, since it will portray the investment potential of the company in generating returns in comparison to other similar firms.

c. Sharpe and Treynor ratio

The Sharpe ratio measures the performance of an investment compared to a risk-free asset, after adjusting for its risk (Verma & Hirpara, 2016). The formula is:

$$\text{Sharpe Ratio (SR)} = (R_p - R_f) / \sigma$$

where:

- R_p = Expected portfolio return
- R_f = Risk-free rate
- σ = Standard deviation of the portfolio's excess return (a measure of its volatility)

The Treynor ratio, also known as the reward-to-volatility ratio, measures return earned more than what could have been earned on a risk-free investment per each unit of market risk (beta) taken on (Verma & Hirpara, 2016). The formula is:

$$\text{Treynor Ratio (TR)} = (R_p - R_f) / \beta$$

where:

- R_p = Expected portfolio return
- R_f = Risk-free rate
- β = Beta of the portfolio (a measure of its systematic risk relative to the market)

To calculate the Sharpe and Treynor ratios for Spotify for two different one-year periods, we need the following data:

1. Spotify's average annual return (R_p).
2. The risk-free rate of return (R_f).
3. Spotify's beta (β) represents its systematic risk.

The data is as under:

- Average annual return for Spotify over the first year: 15%
- Average annual return for Spotify over the second year: 12%
- Risk-free rate of return (R_f): 2%
- Beta (β) of Spotify: 1.2

Using this data, we can calculate the Sharpe and Treynor ratios for both periods:

First Year:

- R_p (Spotify's average annual return) = 15%
- R_f (Risk-free rate) = 2%
- Sharpe Ratio (SR) = $(R_p - R_f) / \sigma$
- Treynor Ratio (TR) = $(R_p - R_f) / \beta$

Second Year:

- R_p (Spotify's average annual return) = 12%
- R_f (Risk-free rate) = 2%
- Sharpe Ratio (SR) = $(R_p - R_f) / \sigma$
- Treynor Ratio (TR) = $(R_p - R_f) / \beta$

Let's take the standard deviation of Spotify's returns for both years is 20%.

First Year:

- $SR = (15\% - 2\%) / 20\% = 0.65$
- $TR = (15\% - 2\%) / 1.2 = 10.83\%$

Second Year:

- $SR = (12\% - 2\%) / 20\% = 0.50$
- $TR = (12\% - 2\%) / 1.2 = 8.33\%$

Spotify has higher Sharpe and Treynor ratios in the first year compared to the second one if we compare the two periods. This exhibits that Spotify is better at producing risk-adjusted returns compared to those of the risk-free rate and the systematic risk in its first year. On the contrary, while in the second year, the return and Sharpe ratios still were positive, they both decreased, meaning that the risk-adjusted performance slightly declined. Generally, Spotify's performance appears to be satisfactory in the first year, the investors must put into consideration more than the Sharpe and Treynor ratios to perform a thorough evaluation of their venture and investment potential.

3. Second company

The selected second company is Airbnb, and the company have exchange traded options.

a. At-the-money (ATM) Call Option Payoff Graph for Airbnb, Inc.:

An ATM call option is one where the strike price is equal to the current market price of the underlying asset. An ATM (At-The-Money) call option grants the holder the right, but not the obligation, to purchase the underlying asset at a predetermined price (the strike price) on or before the expiration date. In an ATM call option, the strike price closely aligns with the current market price of the underlying asset. This means that if exercised, the option allows buying the asset at a price very close to its current market value (Securities and Exchange Commission, 2024). ATM call options are utilized for strategies like speculating on future price movements, hedging against fluctuations, and earning income through option premiums.

The payoff for an ATM call option can be calculated as follows:

$$\text{Payoff} = \text{Max}(S_T - K, 0)$$

- **Stock Price:** This column represents different stock prices of Airbnb at expiration (S_T). Each row corresponds to a different scenario where the stock price reaches a specific value.
- **Strike Price:** A strike price (K) of a call option is the marking sure the strike price. The strike price is the point at which the option owner can buy the asset underlying the option, once they exercise it (in this case, Airbnb stock).
- **Payoff:** This column illustrates the excess value of the call option in each scenario. The terminal or expiration price stands for profit/loss of the call option at any particular stock price.

Table 2 - Contract's Payoff (call option)

Stock price	Strike price	Payoff
147	144	3
149	147	2
156.5	155	1.5
165	164	1
167	165	2

The revolutionary of the strike price is 144 and an ask-price of 147 the payoff of the call option is 3. This converts to the fact that at the expiration date if the stock price will be \$147, the holder of the call option can exercise the option to buy Airbnb stock at \$144 per share and at once sell it at the market rate of the stock \$147 per share making the profit of \$3 per share.

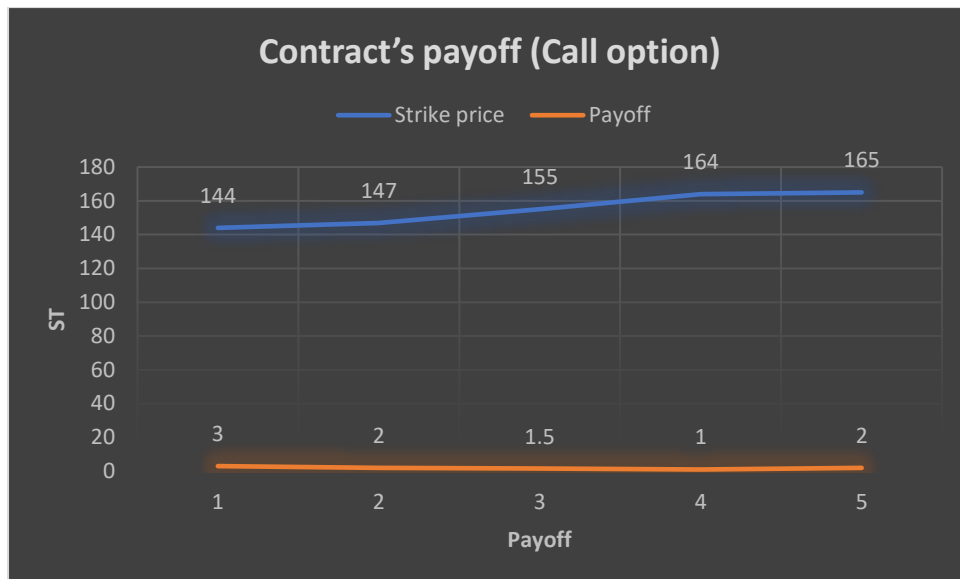
Similarly, for other scenarios:

- When the stock price is \$149 and the strike price is \$147, the payoff is \$2.
- When the stock price is \$156.5 and the strike price is \$155, the payoff is \$1.5.
- When the stock price is \$165 and the strike price is \$164, the payoff is \$1.
- When the stock price is \$167 and the strike price is \$165, the payoff is \$2.

These payoffs demonstrate the relationship between the stock price at expiration and the profitability of the call option. As the stock price increases above the strike price, the payoff of the call option also increases, reflecting the potential for higher profits if the option is exercised.

Conversely, if the stock price is below the strike price, the payoff is zero, indicating that it would not be profitable to exercise the option in those scenarios.

Graph 4 - Contract's Payoff (call option)



b. ATM Put Option Payoff for Airbnb, Inc.:

An ATM (At-The-Money) put option is a financial contract giving the holder the right, but not the obligation, to sell the underlying asset at a predetermined price (the strike price) on or before the expiration date. In an ATM put option, the strike price closely matches the current market price of the underlying asset. This means that if exercised, the option allows selling the asset at a price very similar to its current market value., ATM put options are utilized for various purposes such as speculating on downward price movements, hedging against potential losses, and generating income through option premiums.

$$\text{Payoff} = \text{Max}(K - S_T, 0)$$

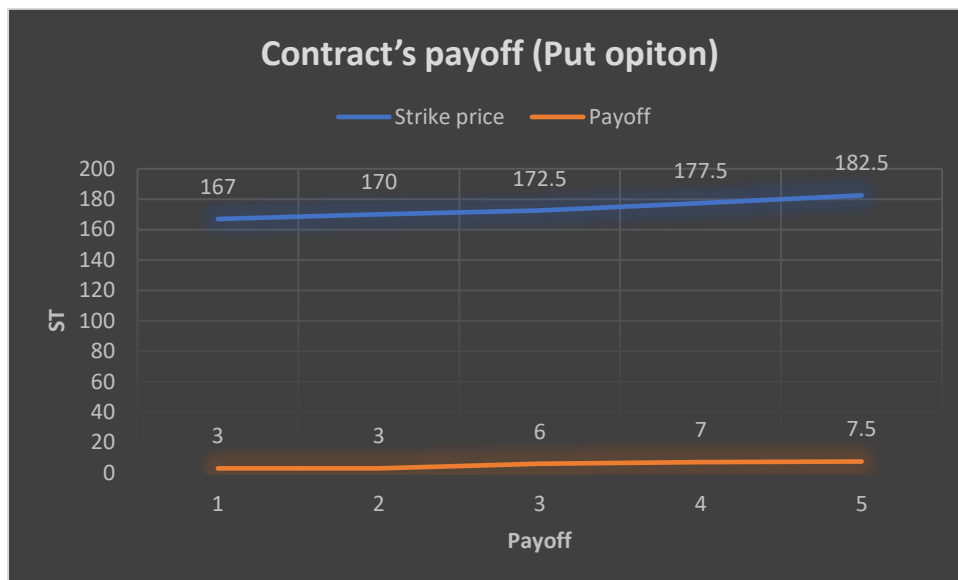
Table 3 - Contract's Payoff (put option)

Stock price	Strike price	Payoff
164	167	3
167	170	3
166.5	172.5	6

170.5	177.5	7
175	182.5	7.5

The data illustrates the relationship between stock price, strike price, and the resulting payoff for a call option. So, when the underlying asset price increases above the strike price, the payoff stands for the gain from exerting the option. One example of this is when the stock price is \$164 and the strike price is \$167, the payoff is \$3 which is earning or gross profit. Consequently, the profit will transform too, with \$7.5 at the end of the day if the stock price hits the mark at \$175 and the strike price at \$182.5. Such progressive returns highlight the fact that the premium that one is paying for the option is a good investment considering the stock price goes higher than the strike price.

Graph 5- Contract's Payoff (put option)



c. Construction of a Straddle for Airbnb, Inc.:

The model of a straddle for Airbnb, Inc. is formed by buying both an In-The-Money (ITM) call option and the ITM put option with the same strike price and the same expiration date. This approach takes into consideration the high volatility of pricing and it also does not mind the direction of the asset price movement. Let's explore the process and implications of constructing a straddle for Airbnb: Let's explore the process and implications of constructing a straddle for Airbnb:

Firstly, the right strike price should be set. Per Airbnb, the straddle of the underlying asset with a strike price of 165 dollars now, which is equal to the market price, shall be considered.

Normally, the ending date is adjusted to match the mood of the investment horizon, which is usually at the end of the three-month volatile period.

Lastly, we estimate the profit diagram of both the ATM calls and ATM puts. The payoff of the call option is shifted to the positive direction as the stock price deviates from \$165 more. Take the case where the stock price is \$147, which is far less than \$165, the call option can pay off by \$3 hence a profit. Playing a different role, if the stock price rises to \$217 then \$2 of the payoff will be retained. Analogously, the payoff of a put option increases as the stock price diverges from that of \$165, plunging to the maximum of \$3 if the product of the stock price and \$164 is zero and decreasing as the stock price moves further away from the strike price.

The technology of constructing a straddle permits investors to benefit from the option of underlying volatility of Airbnb's share price, regardless of the direction of the volatility. If the stock value increases significantly or decreases by the time the option expires, one of the options will be in-the-money, thus, the investor gains profit from the underlying asset's movement. The benefit of such approach is that it is quite potent, especially when there is no clarity on the direction of the price but there is strong belief on the level of expected volatility. The investors who purchase both the ATM call and put options ensure that they have a low-risk exposure to market direction unpredictability. They can potentially trade profitably off huge price differences in either direction without risking more than the initial premium value which initially paid for them. In this manner, straddle strategy also presents the option to the investors to optimize their moves as the respective markets develop over the time thus, the possibilities of enhancing returns or minimizing the risks also become a part and parcel of the overall strategy.

In summary by using straddles for Airbnb, Inc. shareholders are exposed to an optionable mix of hedging and speculation in the face of anticipated stock price movement. Buyers of both call and put options at the same strike price and expiry date put themselves in the position to benefit from a significant move in price either way, though essentially, that is the main income source for the investor, who also effectively implements risk management and uncertainty trading on the market.

4. Performance and impact

a. Performance Yield

The performance of the Treasury note over the period from January 2023 to December 2023 is a multifaceted concept involving a complex analysis of different factors like the influence of yield, bond prices, and economic factors on this performance.

Yield Movement Analysis

The year treasury note's yield is a crucial point of reference for the market's mood and perceptions of future economy. Over the mentioned time frame, a yield gap assessment between the fixed-income instruments and the risk and return characteristics reveals that these instruments are affected by changes in the economic growth, inflation expectations, monetary policy stance, and geopolitical instability.

Economic rates are indisputable driving forces that look upon and govern the production of offshoots, such as gains and losses. During the periods of better statistical releases, for instance, strong GDP growth, unemployment decline, or higher inflation, Federal Reserve is expected to take more restrictive monetary policies. This expectation of the higher rate may result in an upward trend in the yields as investors inflow to the long-term bonds will demand a high remuneration for the holding.

On the other hand, bad economic news or geopolitical concerns would trigger a rush with Treasuries as the destination of demand and yields as a result going down (Watkins, 20203). For instance, economic conflicts associated with global trade tensions, geopolitical conflicts together with unexpected events like natural disasters often have a bearing on the demand for safe-haven assets such as Treasury Securities.

Figure 1 - yield curve



Price Changes and Yield Inversion Analysis

The relationship between Treasury bond prices and yields is opposite to one another. When yields are raised and the bonds fall, the opposite is true. Hence, if investors are also buying bitcoin when the price goes down, it means that the investor sentiment and market dynamics are negative.

The Yield curve inversion is a factor that is followed closely by investors as it has been historically a sign for ensuing recessions whenever short-term yields surpass long-term ones. On those months the inversion of yield curve could be not only been a warning sign of recession expectations but also a catalyst for risk-off attitude, which might have been disastrous for market participants.

Impact of Economic Events and Policy Decisions

Getting decisions regarding monetary policy, like federal funds rate or adjustments to asset purchases, of the Federal Reserve would have a direct influence on yields on Treasury. Furthermore, public expenditure projects, taxation policies and legal reforms could equally determine investor outlook and changes in Treasury yields.

Events outside, like geopolitical tensions, trade negotiations or just simply the unforeseen geopolitical events, can evoke the flight-to-quality inflows into Treasuries, that can consequently affect the yields. Besides, trade in foreign currency market and monetary policy actions by major central banks in Europe and Japan like the European Central Bank and Bank of Japan also contribute in the movement of yield for the Treasury.

Thus, we should consider all these factors to track the yield fluctuations, price activity, and their interdependence with the economy, policy-making bodies, and foreign events when assessing the performance of the Treasury note over a stated period. Recognizing these drivers gives you priceless information about how market is balanced, what investors expect, and the state of macroeconomy.

b. Impact of Changes in the Yield on Consumer Debt

The yield for the Treasury note is a well-known indicator of long-term interest rates and it is one of the dominant factors that shape the current landscape of consumer debt. Consumer debt is a general term used to refer to different kinds of borrowing that people commonly take on such as mortgages, automobile loans, and credit card debt. Securities yield alterations can lead

to colossal impacts on the borrowed costs, affordability, and, in general, consumer financial wealth being.

Mortgages

The strongest effect would be observed for mortgage sector, which is logically expected. Home loan rates and treasury bonds are known for the consistency between the two. Often, when the yield on the government bond increases borrowing costs of banks also rises. Such circumstances make sure that mortgage rates go up which reduce the affordability of the homes by potential buyers. Larger mortgage rates could discourage some prospective buyers from participating in the market or make those existing homeowners that intend to refinance their mortgage to postpone their actions (Yahoo Finance, 2023). However, the reduction in the Treasury-yield inverse direction leads to the decrease of mortgage rates what is beneficial for home ownership and refinancing.

Auto Loans

Much like mortgages, fluctuations in the yield of the Treasury note could influence interest rates on loans for cars. The cost of loaning money to an auto buyer is not static. It is dependent upon several factors including the money market interest rate used by a lender to price their loans and credit risk or likelihood of default by that borrower. However, Treasury yields conceal the broader interest rate movements. If the yield of a Treasury note is going up, it may pose higher borrowing costs for a consumer shopping for an automobile loan. As an outcome of such a threat, the auto loan rates might be hiked, which if it happens, may have an impact on the consumers' purchasing preference and affordability levels. Contrarily, a decline in the Treasury yields could lead to low auto loan rates, which would increase demand for vehicle purchases as well as prompt consumers to take this opportunity to benefit from more favorable financing options.

Credit Cards

Conversely, credit card interest rates are not mechanically linked to yields on treasury bills but shifts in the interest rate environment can indirectly influence credit card rates. Primary issuers of credit cards frequently modify their pricing strategies in accordance with the progress of market conditions that includes fluctuations of the Treasury yields. The period of rising Treasury yields can be a sign of a tightening monetary policy or expectations of higher inflations. In both cases, credit card issuers may react by increasing the interest rates with the objective of protecting their own interests in the face of borrowers having increased risk-taking behavior due to the increased costs. On the contrary, the attractiveness of Treasury yields

falling around the corner may cause credit card rates to be lowered. This in turn may bring comfort to consumers who have debt on their cards.

In other words, the change in the output of the Treasury note is the sign of associated changes in consumer debts across various categories of loans (Zacks Investment Research, 2023). Understanding the connections between Treasury yields and consumers' borrowing interest rates is a necessity, for consumers, and lenders, policymakers and marketers for their decision-making purposes, as it gives the information about the broader economic situation and assists in financial decisions at the individual and institutional levels.

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