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Equity Follow-On Offerings: An Empirical Analysis of Market Reactions from the Travel and Tourism Industry During the COVID-19 Crisis

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Abstract

This thesis investigates the role and market implications of equity follow-on offerings (EFOs), in the context of the travel and tourism industry during the unparalleled circumstances of the COVID-19 pandemic. The study aims at exploring whether the empirical regularities commonly documented in the literature, namely the negative short-term price reactions around issuance announcements and the persistent underperformance in the long run, hold in conditions of systemic distress, or whether the crisis environment shaped different patterns of investor response. The research is structured around three interconnected dimensions. The first part reviews the theoretical foundations of equity issuance decisions, presenting the main financing theories and the empirical evidence on short- and long-run performance; the second part, examines the unprecedented shock brought about by the COVID-19 pandemic on the global economy and, specifically, on the travel sector. The core empirical section focuses on a sample of U.S. listed firms related to the travel industry, that conducted an equity follow-on offering between 2020 and 2022. Through an event study approach, abnormal returns are measured around key announcement windows, while a buy-and-hold abnormal returns framework is employed to capture long-term performance. In addition, cross-sectional regressions are used to examine the influence of firm-specific determinants on market reactions. The findings collectively enrich the existing literature by situating the analysis of SEOs in a period of global systemic shock, offering insights not only into how capital markets valued equity financing under pandemic distress but also into the structural vulnerabilities of the travel and tourism sector.

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Introduction

The outbreak of the COVID-19 pandemic in early 2020 constituted an unprecedented shock to the global economy, disrupting production, consumption, and international trade in ways not experienced since the Great Depression, generating a crisis of extraordinary magnitude that permeated both financial markets and the real economy. Among the sectors most affected by the crisis, the travel and tourism industry was suddenly paralyzed by the closure of the borders, the lockdowns, and the collapse of international mobility, with revenues sinking and companies facing a severe liquidity shortage, distress, and uncertainty on how demand would unfold in the future. In this framework of systemic disruption, the question of how companies financed themselves in order to survive and adapt came at the forefront, since traditional channels of debt financing were either seriously impaired or available only at exorbitantly high costs; thus, many firms were forced to resort to equity issuance as a last way out to guarantee continuity and avoid bankruptcy. Equity follow-on offerings (EFOs), therefore, became the front line as a form of corporate survival and recapitalization during the pandemic years, although in the literature, under normal circumstances, such transactions are mainly associated with negative stock price reaction, a short-run underperformance in the event window, and a prolonged value erosion in the long run. The pandemic, however, constituted a very different context, in which the reasons behind the equity issuance were not primarily driven by market timing attempts or by managers' willingness to exploit short-term overvaluation, but by the desperate need to strengthen the balance sheets, restore liquidity and to convince investors, creditors, and regulators that firms would survive and continue to operate. Hence, this extraordinary setting, offers a unique opportunity to revisit and contextualize the well-grounded capital structure theories—market timing, pecking order and signaling—within the conditions of systemic distress, thereby contributing to an enriched understanding of corporate financing decisions under crisis circumstances.

Against this backdrop, the present study examines the short-term and long-term market reactions to equity follow-on offerings undertaken by U.S. travel- and tourism-related firms in the period spanning from March 2020 to December 2022, a period which encompasses both the peak of the pandemic-induced crisis and the subsequent initial recovery trajectory of the industry. By performing an event study analysis to capture abnormal returns around the

announcement windows and a buy-and-hold abnormal return (BHAR) analysis to examine post-issuance performance at longer horizons, the thesis aims at assessing if the empirical regularities found in the literature still hold in a distressed context, or if the crisis environment softened the typically negative patterns documented for SEOs. Moreover, through a cross-sectional regression analysis, the study investigates the firm characteristics, such as relative offer size, leverage, profitability, and valuation, that may have influenced investor reactions to equity issuance in this particular market environment. The contribution of this research is threefold; first, it enriches the existing literature on seasoned equity offerings by situating the analysis in a period of systemic global distress, testing if the reported empirical regularities are robust to a severe exogenous shock. Second, it focuses on a single sector, the travel and tourism, that was disproportionally affected by COVID-19, hence offering a more granular perspective on the interplay between industry-specific vulnerability and capital market dynamics. Third, by combining the short-term event study approach, with the long-term performance analysis and the investigation of the cross-sectional determinants, the study offers a rich picture of how follow-on equity issuance was perceived and priced during the pandemic, providing insights not only for academics but also for practitioners, policymakers, and managers navigating financing strategies in times of crisis. The structure of the thesis is organized as follows. Chapter 1 provides an extensive literature review on seasoned equity offerings, from theoretical backgrounds and offer procedures to evidence on short- and long-run performance. Chapter 2 reviews the impact of the COVID-19 pandemic on the global economy and in particular on the international travel and tourism sector, from the size of the shock to the policy response and the trajectory of the recovery. Chapter 3 introduces the empirical research design, states the hypotheses and describes the data and the methodology employed in the analysis; this chapter also reports and discusses the empirical results and the robustness tests and investigates the cross-sectional drivers of stock price reactions. The thesis concludes by summarizing the main insights, reflecting on their implications for theory and practice, and acknowledging the limitations of the study while suggesting avenues for future research.

Chapter 1: Literature Review on Equity Follow-On Offerings

1.1 Theoretical Foundations of Equity Follow-On Offerings (EFOs)

Equity follow-on offerings (EFOs), also known as seasoned equity offerings (SEOs), are the expressions that refer to the placement of additional shares in the marketplace by an already listed company, as opposed to an initial public offering (IPO), which is defined as the event where a private company sells its stocks for the first time to the public, becoming publicly traded; while the registration process for IPOs typically takes about four to six months, the registration timeline and process for follow-on offerings is typically one to three months, with some even completed in one week or less, since the availability of public information and disclosures of the issuer make it easier to conduct due diligence and prepare the documents for a follow-on offering.

Seasoned equity offerings are divided into two different types: primary offerings, which are issuance of new shares conducted directly by the company and secondary offerings, that refer to placement of the shares by existing stockholders or other securityholders of the company. Companies conduct primary offerings in order to raise additional capital to fund new projects, acquisitions, or general operations, while secondary offerings do not generate any proceeds for the company, as they are directed to selling shareholders; furthermore, because primary offerings increase the number of shares outstanding, decreasing existing shareholders' ownership percentages, they are considered dilutive, while secondary offerings are regarded as non-dilutive to current securityholders, since they consist in the resale of securities by existing shareholders.

Equity follow-on offerings can be further categorized into three core types according to their offer methods: fully marketed offers, also known as traditional book-built offers, accelerated offers, which include primarily bought deals and accelerate book-built SEOs and ultimately rights issue offers.

1.1.1 Fully Marketed Offers

Fully marketed SEOs, also known as traditional bookbuilt offers, are issued in a comparable manner as initial public offerings, but they differ in having observable market values when the offerings are priced, which makes pricing much easier; a company wishing to raise capital by selling newly issued shares, or shareholders wishing to sell existing shares, negotiates underwriting terms with one or more investment banks, to market the offer and then set the price. In the case of "primary," or capital-raising offers, which is typically the employed type, the lead underwriter or underwriters is also in charge to conduct a due diligence investigation to certify the quality of the company and print a prospectus to ensure a comprehensive disclosure of the shares offering to investors. As part of the marketing effort to develop interest in the offer, the issuer's management accompanies underwriters on road shows to meet with selected institutional investors, analysts, and securities sales personnel over a two-week period, allowing these participants to acquire information regarding the company and have sufficient time to investigate and make their investment decisions (Bortolotti, Megginson, & Smart, 2008). During the road show the bookrunner, which is always a lead underwriter, gradually assesses institutional investor demand and uses the information received to determine an offer price, usually set slightly below the prevailing market level, by building an order book; banks make a "firm commitment" to underwrite the shares only at the conclusion of bookbuilding process and, consequently, a syndicate of underwriters led by the bookrunner resell the shares to investors. According to Gao and Ritter (2010), fully marketed offers take on average 31 calendar days to complete, as they require a longer underwriting process with respect to other types of follow-on offerings, like bought deals and accelerated book-built SEOs, that are usually offered within one or two days of the filing; accordingly, longer underwriting processes, require more resources and input from both the issuer and the lead manager, which explains why fully marketed offers are observed to pay a higher average gross spread[1] of 5.10%, with respect to the case of accelerated offers where bookbuilt offers pay a spread of 4.23% and bought deals of 2.28%. This suggests that a higher gross spread is truly associated with bookbuilding and, particularly, with expensive marketing efforts[2], even though in bought deals the underwriter is exposed to more resale price risk, as it will be outlined in the following paragraph.

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[1] The gross spread is the underwriting discount charged by investment banks, defined as the difference between the price at which shares are sold to investors and the net proceeds received by the issuer, expressed as a percentage of the issue size. It represents the direct compensation to the underwriting syndicate for marketing, distributing, and assuming risk on the shares.
[2] In the context of equity offerings, "marketings efforts" generally refers to the set of activities carried out by underwriters to generate investor demand for the new shares, including roadshows, investor presentations, book-building interactions with institutional investors, and other forms of communication designed to stimulate interest and achieve successful placement of the issue.

1.1.2 Accelerated Offers: Bought Deals and Accelerated Bookbuilt Offers.

The first form of accelerated underwriting, bought deals, involve the rapid sale of large blocks of shares, at auction-determined market prices, directly to an investment bank by the issuing companies or selling shareholders, with minimal requirement or capacity for information production regarding pricing or demand; they are essentially auctions to underwriters followed by open market sales. The winning bank, which is the one offering the highest net price, is then responsible for reselling the shares to institutional investors, typically within 24 hours, with no recourse to the original seller; because of this timing, these transactions are also known as overnight deals. In a bought deal, the underwriter commits to purchase all the shares to subsequently sell them to the secondary market, there is no bookbuilding nor road show involved, therefore, the investment bank faces greater resale price risk because, in general, the market has not had a prior opportunity to react to the offer announcement (Gao & Ritter, 2010). The second and most popular type of accelerated SEOs, called "accelerated book-built offerings", are executed much more rapidly than conventional book-builds, as they are usually launched post market close and pricing and allocations released ahead of market opening the following day; this offering method is similar to traditional underwritings in that banks are responsible for the order book, price stabilization, and transparency of the allocation. Accelerated bookbuildings (ABBs) can be primary or secondary transactions: in primary ABBs, new shares are sold by the company to new and existing shareholders, while in secondary ABBs, existing shareholders monetize some or all of their holdings. Within this category of offering, the issuing company hires an investment bank to act as an underwriter that must quickly assess market demand before committing to an offer price, more specifically a price range, even if there is little to no time to conduct true due diligence; when the offering is backstopped by a bank, ABB issuers choose the lead underwriter based on the "backstop clause", which represents the minimum price that the bank guarantees to the issuer, the underwriting spread, placement capabilities and other profit-sharing agreements (Bortolotti, Megginson, & Smart, 2008.). The offering may also be executed on a best effort basis, meaning that the underwriter doesn't commit to buy any unsold share since it only agrees to use its best effort to sell as many shares as possible, within the previously agreed price range.

The winning bank solicits bids from top-tier institutional investors to ensure a more accurate price for the issue, which has to be inside the price range provided by the investment bank; the order book is open for a fixed period of time, usually only a few hours, during which bidders can revise the price offered and the size requested. Once the book is closed, aggregate demand for the issue is evaluated in order to place a value on the security; using this order book, the underwriter sets the price of the shares in agreement with the issuer, generally at a small discount to the prevailing market price and allocations are then communicated, typically the following day after the transaction is launched.

The bookbuilding procedure is considered "accelerated" in the sense that no road show is conducted and the underwriting procedure is typically completed overnight, as previously noted, or implemented within 48 hours. ABBs are generally undocumented transactions, meaning that they do not require an offering memorandum; moreover, while this format offers speed and flexibility, thereby minimizing market risk for the issuer, it also reduces the time available for the due diligence. Hence, lead managers must rely on experience to quickly assess the offering initially and trust the market during the subsequent stage, in which they gather bids from top-tier financial institutions to determine the accurate price; indeed, given the minimal marketing effort involved in accelerated deals and the very limited time available for investors to evaluate the offers, these transactions heavily relay on investment banks' capital base and risk tolerance. Nevertheless, the issuer continues to share price risk with the underwriting bank, allowing it to execute larger share placements compared to bought deals, because the underwriters do not assume the same level of unconditional price risk.

1.1.3 Rights Offers

In the public offerings outlined above, firms announce the issue size and allow both existing shareholders and new investors to subscribe; in rights offerings, by contrast, firms announce the size of the issuance and offer rights to current shareholders on a pro rata basis[3], that entitle them to purchase the shares at the subscription price. Shareholders may decide whether to exercise these rights, sell them to other investors, or do nothing, letting their entitlement expire. The rights issue is generally underwritten by one or more investment banks, that agrees with

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[3] The "rights" to buy additional shares are distributed in proportion to each shareholder's existing stake.

the issuer on a subscription price at which the new shares will be sold to shareholders. While the level of discount relative to market price is largely irrelevant to the issuer and to existing shareholders, it is highly relevant for the underwriters, as it determines the risk they assume in guaranteeing the issue; indeed, at the end of the offer, any new shares left unsubscribed are typically auctioned to the market or eventually taken up by the underwriters (Burkart & Zhong, 2023). As previously mentioned, shareholders face several strategic choices regarding the treatment of the rights they receive; they can decide to exercise the rights in full, purchasing the new shares they are entitled to, maintaining their ownership percentage in the firm unchanged, as the disbursement required is proportional to the offer size. A second possibility is to sell the rights in the secondary market during the rights-trading period, since rights are typically listed and can be traded independently of the underlying shares; in this case, shareholders forgo participation in the issuance thereby suffer dilution of their ownership interest, while realizing immediate cash proceeds from the sale of the right. A third alternative is the so-called "tail-swallowing" strategy, whereby shareholders sell a portion of their rights in the market and use the proceeds to finance the subscription of the remaining rights; this approach allows them to preserve their absolute monetary investment in the firm while minimizing dilution, as the number of shares ultimately subscribed is still sufficient to maintain a comparable percentage ownership, net of the discount embedded in the theoretical ex-right price (TERP). Finally, shareholders may opt to do nothing, leaving the rights to expire unexercised and untraded; while this is typically considered an irrational course of action from an economic perspective, since it entails foregoing both the opportunity to subscribe at a discount and the possibility of monetizing the rights in the market, it may occur due to lack of information, slow decision-making, or inattention. In practice, custodians or depositary banks frequently intervene towards the end of the offer period by selling unexercised rights on behalf of passive shareholders, thereby reducing the inefficiencies associated with lapsing rights.

The aforementioned TERP, is the ex-post share price which is defined as the expected share price after a rights offering is complete and the rights have been detached; it reflects the fact that the new shares are being offered below market price, diluting the existing shares and is computed as the weighted average of the price of new and existing shares. The general formula is: $\text{TERP} = \frac{(N \times P_0) + (M \times P_s)}{N + M}$, where N is the current number of shares outstanding, P_0 is the current market price per share (before the rights issue), M is the number of new issued shares

and P_s is the subscription (issue) price of new shares. The gap between the TERP and the current share price constitutes the theoretical value of one detached right.

The TERP discount represents, instead, the percentage difference between the TERP and the subscription price of the new shares, which are offered at a discount to encourage participation; the rationale for the discount is mainly practical since it mitigate risk of failure if the stock price falls during the offer period, ensuring the subscription price remains below the market levels, keeping the right valuable. Therefore, as long as the market price stays above the subscription price and rights have a positive value, the discount guarantees participation, representing the implicit gain for shareholders who exercise their rights as they purchase new shares at a price which is below the expected post-issue market price; the difference between the subscription price and the TERP corresponds to the value of rights to purchase one share. From a portfolio perspective, the level of discount is theoretically irrelevant as it represents a "zero-sum gain" to existing shareholders, since the loss in value due to the dilution of the pre-issue share price is exactly offset by the positive value of the rights received, therefore the overall wealth of existing shareholders remains unchanged. The proceeds from the rights issue are commonly used by companies to repay debt and enhance their creditworthiness, as well as to raise additional capital, particularly to fund expansion projects; moreover, this type of equity follow-on offering presents a friendly structure especially to current shareholders, that have the opportunity to expand their investment at a lower rate than the prevailing market price and to maintain their ownership stake in the company.

1.2 Key Theories Underpinning Seasoned Equity Offerings Decisions

The decision to undertake an equity follow-on offering can be analyzed, in finance, through several theoretical lenses that provide insights about why companies conduct a seasoned equity offering, how investors interpret them and how the market reacts to them. The major theoretical frameworks include market timing theory, the pecking order and signaling theory.

1.2.1 Market Timing Theory

In corporate finance literature, the market timing theory suggests that the decision to issue equity depends on stock market performance and, since managers possess superior information relative to the market and investors, they act on behalf of existing shareholders and issue new equity only when the firm's stock price is overvalued; such action conveys a negative signal to the market, leading rational investors to discount the stock following an equity follow-on offering (EFO) announcement, as the firm's management has signaled that the stock is overvalued (Myers and Majluf, 1984); accordingly, the theory predicts that in the long-term equity issuance can ultimately reduce shareholder wealth, particularly in the presence of a high degree of asymmetric information. Empirical findings on whether investors systematically overpay for newly issued shares are mixed; some researchers maintain that investors tend to be overly optimistic during new issues, that analyst forecasts are excessively high and that managers may even manipulate earnings to make the company appear healthier, hence inflating its market value. However, other studies, argue in favor of an efficient market interpretation of the market timing argument, claiming that new shares are fairly priced and that investors are not systematically misled and don't always overpay for them. More recent studies have refined this notion, suggesting that market timing is not based on pure overvaluation, but rather on generally favorable market conditions before the offering, a phenomenon described as "pseudo-market timing", that involves exploiting periods of strong stock performances, low perceived risk, and robust investor demand, that as periods of opportunity for issuance.

Consistent with these mechanisms, evidence shows that firms conducting equity offerings tend to underperform in the long run compared to non-issuing counterparts, suggesting that investors who purchase shares of seasoned equity offerings are irrational, since they will often experience lower returns that those who invests in non-issuing counterparts. To mitigate the negative outcomes predicted by market timing theory, Miglo, (2011) argues that issuances conducted shortly after information releases are less likely to trigger steep price declines, since disclosure reduces informational asymmetry and investors tend to be less suspicious about the motives behind the equity issuance. Conversely, the longer the delay between the last information release and the equity issuance, the greater the asymmetry and the larger the negative reaction upon announcement; thus, the magnitude of the price decline associated with a stock offering announcement should be positively related to the time between the last information release and the issue.

1.2.2 Pecking Order Theory

Market timing theory is closely linked to the pecking order hypothesis, since a deviation from the "pecking order" can itself be interpreted as a signal of potential overvaluation; according to Myers and Majluf (1984), the key element of pecking order theory is the existence of information asymmetries between a firm's insiders (managers) and outsiders (investors), which strongly influence financing decisions.

Information asymmetries exist in almost every facet of corporate finance and complicate managers' ability to maximize firm values, in particular managers of good-quality firms face the challenge of directly convincing investors about the true value of their firm, especially if this concerns future performance; consequently, investors usually rely on indirect evidence when evaluating a company performance, analyzing information-revealing actions such as capital structure choices (Miglo, 2011). Within this framework, firms exhibit a hierarchy of financing preferences where equity is dominated by internal funds, as low-quality firms tend to relay on equity as much as on retained earnings, whereas high-quality firms prefer to relay on internal funds. Similarly, when external financing is necessary, debt generally dominates equity, as the pecking order theory posits that, when internal cash flow is not sufficient to fund capital expenditure, quality firms will prefer to borrow resources rather than issue equity; hence, a "pecking order" of financing preferences emerges, starting with internal funds, then debt and using equity only as a last resort (Myers and Majluf 1984). This preference structure arises from the adverse selection costs associated with external financing; indeed, internal funds involve no information asymmetry cost, while leverage involves some, but remain less sensitive to misevaluation and, additionally, debt can be secured by assets. On the contrary, equity is the least attractive option, as it is the most exposed to adverse selection costs; indeed, issuing equity when undervalued hurts existing shareholders, therefore, managers tend to avoid it if they perceive the stock as undervalued yet, when an equity offering does occur, investors may interpret it as a signal of overvaluation, triggering negative market reactions.

Pecking order theory, similarly to market timing, predicts that a higher extent of asymmetric information discourages equity issuance, as investors may undervalue the firm's shares suspecting opportunism on the part of the management, because the firm might be overvalued. While this theoretical framework provides valuable insights into financing decisions and investor's reactions, empirical evidence remain mixed regarding the extent to which firms

consistently follow a pecking order hierarchy, or whether asymmetric information reliably reduces the incentive to issue equity.

1.2.3 Signaling Theory

In the pecking order model, good-quality firms rely primarily on internal funds to avoid adverse selection problems and the potential loss of value, since issuing equity would be interpreted by the market as a signal of overvaluation; these firms cannot easily signal their true quality by altering their capital structure. Building on this, signaling theory emphasizes that capital market reactions to equity offerings can largely be explained by the fact that markets are characterized by informational differences between investors and issuers, where private information can be signaled by a firm's management actions, that indirectly communicate the business condition of the company to investors (Leland and Pyle 1977). Thus, managers with strong expectations about the future will hold large stock positions only if they expect future cash flows to be high relative to the firm's current value, and rational investors will consider managers' fractional stock ownership to be a credible signal of firm value; conversely, a decrease in managements' fractional shareholdings induced by a stock offering to outside investors, will be interpreted as a negative signal about firm value.

Accordingly, a firm with solid fundamentals expecting adequate and robust cash flows, will confidently issue debt, instead of equity, to meet its investment needs, revealing its solid financial health and ability to service obligations associate with debt; on the contrary, weaker firms will be more likely to issue equity both to avoid debt-related risks and costs, which can be extremely expensive, and capitalize from the potential overvaluation.

As a result, announcements of equity offerings are usually followed by a negative share price reaction, as also evidenced in the previous theories, whereas leverage-increasing transactions tend to elicit positive market responses; empirical prediction, therefore, suggests a positive relationship between firm value (or profitability) and leverage. However, the evidence remains ambiguous, as numerous empirical studies provide findings of a negative relationship between leverage and profitability, consistent with pecking order theory, which posits that more profitable firms tend to avoid even debt and relay on internal funds (Miglio, 2011).

Within signaling theory, the reaction of the market to an equity follow-on offering also depends on what the company disclose about the use of proceeds raised from the issuance; indeed,

models predict less negative returns when cash proceeds are aimed at debt reduction, as debt repayment is more transparent and straightforward, while using the capital obtained from the offering to fund vague "growth" or risky projects are perceived more skeptically. High-growth firms, as well as companies with poor fundamentals, which often have risky, uncertain, or innovative projects, will rely more on equity financing whereas firms with sound financial foundations will primarily use retained earnings or debt, to finance predictable, low-risk investments (Hull, Kwak, & Walker, 2009).

Taken together, this perspective reinforces the consensus that SEOs often convey negative signals of potential stock overvaluation, consistent with the other mainline capital structure theories presented before.

1.3 Empirical Evidence on Market Reactions to Equity Follow-On Offerings

The theories discussed in the previous paragraphs present valuable insights about the reasons that lead firms to undertake a seasoned equity offering but is important to examine how these predictions translate into actual market behavior. The extensive empirical literature on equity follow-on offerings has largely focused on two dimensions of stock market reactions: the first one concerns short-term announcement effects, where abnormal returns are measured around the issuance or filing date, to capture the immediate market response to new equity financing. The second dimension relates to long-term post-issue performance, typically assessed over horizons of several months or years, in order to detect whether SEOs have persistent effects on shareholder returns beyond the announcement period; together, these two strands of evidence, provide a comprehensive view of how investors react to EFOs in practice and allow a direct comparison with the theoretical predictions discussed above.

1.3.1 Short-Term Price Reactions

It is a well-established result that the announcement of an follow-on equity offering is associated with a negative short-term stock price reaction; this phenomenon was first

extensively documented in a series of U.S. studies about seasoned equity offerings published in the mid-1980s. Taking the average of these results, the two-day average abnormal return[4] (AAR) around the announcement day and the day before the issuance was -3.14% for industrial companies and -0.75% for utilities (Smith, 1986); the loss of market value on announcement was proportionally large in relation to the funds raised through the offer, representing an average of 31% of the amount of proceeds in primary offers (where the company issues new shares and receives the capital) and 78% in secondary offers (where existing shareholders sell their shares) (Asquith & Mullins, 1986). From a rational perspective this negative reaction is unexpected, since according to standard corporate finance theory, companies will only choose to raise new capital if they have a use for funds that creates positive net present value (NPV), which should represent good news for investors, so that a share issuance should be positively viewed; the leading explanation of the negative reaction, however, is that announcements convey adverse information to the market, specifically of possible overvaluation, as concluded under the market timing theory, the pecking order and signaling theory previously discussed.

Indeed, in the influential model of Myers & Majluf (1984), assuming that managers are better informed about firm value than the market and that they act in the interests of existing shareholders, it is argued that the shareholders lose out if the management issues new stocks knowing that the company is undervalued, because some of the future gain from being undervalued will be captured by new investors at the expense of incumbents, so the firm will refrain from issuing; the loss will be greater as the number of new shares issued is bigger and the more undervalued the company is. Therefore, if the loss is greater than the existing shareholders' portion of the NPV from investing the new funds, the company will not issue. Conversely, if equity is overvalued, issuance is attractive because part of the eventual decline in value is borne by new investors, and anticipating this, rational investors will discount the stock price when an offering is announced (Armitage, 1998).

Consistent with this interpretation, SEOs announcements tend to be greeted with skepticism, as investors perceive them as signals of adverse selection and potential overvaluation, leading to significant short-term price declines in most markets and periods; nevertheless, the magnitude of the effect differ by issuance method. In rights offerings, for example, where existing shareholders are given the priority in the purchase of new shares, less negative announcement

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[4] The two-day average abnormal return (AAR) refers to the mean difference between the actual stock return and the expected return, estimated through a benchmark model (e.g., market model), over a two-day event window. In this case, the event window is defined as day 0 (the announcement day) and day -1 (the trading day immediately preceding the announcement).

effects were registered. In these forms of equity issuance, shareholders that take the decision to sell the rights received, still miss out if the issuer is undervalued, but their entitlement to maintain their stake in the company is protected, so that undervalued companies should be less concerned about issuing equity with this method, knowing that shareholders can avoid dilution and possibly benefit from a discount. In fact, evidence shows that underwritten rights issues are associated with smaller pre-issue price run-up[5] and less negative announcement effects, while non-underwritten rights issues often show virtually no pre-issue run-up, with the absence of a subscription agreement signaling issuer confidence; this supports the idea that firms undertaking rights issue engage in a less aggressive market timing and are not driven by opportunistic behavior but rather by genuine capital needs, which reassures the market and mitigates negative reactions[6].

Further evidence[7] from the 1990s and 2000s corroborates these patterns where studies documented that EFOs exhibit an average underpricing of 2 - 3%, relative to the closing market price on the issue day, with fully marketed deals underpriced on by about 3.4%, compared to just 1.6% for accelerated offerings. This has been interpreted as a sign that marketing efforts, such as roadshows, may temporarily inflate stock prices, yet, the issuers do not fully capture this in a higher offer price, as they end up accepting a price that's lower than what the market would bear.

The formulas employed to calculate discount and underpricing in the literature mentioned in this paragraph, are expressed as follows: denoting the closing market price on the previous trading day of the offer by MP_{t-1}, the offer price by OP and the closing market price on the offer day by MP_t, the discount is the percentage price change from the closing price on the previous trading day of the offer to the offer price, $\frac{(MP_{t-1} - OP)}{MP_{t-1}} \times 100\%$; the underpricing, instead, represents the percentage price change from the offer price to the closing price on the offer day, $\frac{(MP_t - OP)}{OP} \times 100\%$ (Gao & Ritter, 2010) .

Gao and Ritter (2010), examining U.S. common stock seasoned equity offerings between 1996 and 2007, found an average discount of 2.75% and underpricing of 3.11% on the offer day,

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[5] A stock price 'run-up' refers to the period before an equity offering when the share price increases, often due to market speculation or managers timing the issue when the stock is overvalued.

[6] For UK rights issues, Marsh (1979) finds 'a small price fall of some 0.6% on average 'on the announcement date and Levis (1995) reports a two-day AAR of -1.33%. US results are similar; Hansen's (1989) AARs for underwritten rights are -2.61% for industrials and -1.21% for utilities, while Eckbo & Masulis (1992) report AARs of -1.03% and -0.53% respectively, and AARs not significantly different from zero for non-underwritten rights (Armitage, 1998).

[7] Corwin (2023), Altinkilic and Hansen (2003), and Mola and Loughran (2004).

with fully marketed offers, in their sample, exhibiting an average discount of 2.66% and the largest underpricing of 3.43%; this indicates that although shares are priced moderately below the market before the offer, the post-issue stock price rises significantly above the offer price, implying that investors could realize substantial gains but also that the issuing firm may not be capturing the full market demand or value created by the marketing process.

In contrast to the other equity offerings methods, bought deals displayed, on average, the largest price discount of 3.93% but the lowest underpricing of 1.09%, implying that the discount is primarily serving to absorb the negative announcement effect, rather than translating into post-issue investor gains; because these deals are typical marketed privately to institutional investors, often overnight, they are exposed to uncertainty and reduced transparency, requiring deeper initial discount to clear the market quickly and avoid prolonged exposure to price pressure. Lastly, accelerated bookbuilt offers, showed a more balanced pricing dynamic, with an average discount of 2.43% and underpricing of 2.10%, reflecting the combination of rapid execution with some market feedback and limiting information leakage, leading the discount offered to closely match the stock's actual behavior after the issuance. For the subsample where the announcement and the offer occurred on the same trading day (or where the announcement was after the market close and the offer followed the next day), the weighted-average underpricing was 1.58%, substantially lower than the 3.43% observed for fully marketed deals, suggesting that in the latter case, even though marketing efforts temporarily boosted the stock price, the issuing firm still failed to benefit from a higher offer price, while simultaneously incurring in higher gross spreads and larger underpricing costs.

1.3.2 Long-Term Performance

As discussed earlier, while numerous authors have documented that seasoned equity offerings occur on average after substantial price run-ups and are associated with an underpricing of roughly 3% at issuance, the evidence on long-term post-issue performance is equally important and a consistent finding across the literature is that, even in the long run, companies conducting follow-on equity offerings exhibit subpar stock performance relative to peers.

Loughran and Ritter (1995) provide some of the most cited evidence. Examining SEOs between 1970 and 1990, they report that in the year prior to the offering, issuers experienced an average return of 72%, reflecting both market run-ups and firm-specific outperformance. However, over

the subsequent five years, issuing firms generated an average buy-and-hold return[8] of 33%, while the average buy-and-hold return on their matching non-issuing firms was 93%, yielding a wealth relative[9] of 0.69, which means that investors would have earned only 69 cents on the dollar by investing in SEO firms, rather in comparable peers; median results are even more striking, as the median of the five-year buy-and-hold return on the issuing firms was –8%, whereas the one on their matching firms was 50%. In other words, the five-year buy-and-hold return illustrates how much additional capital an investor would need to commit to SEO firms, relative to non-issuers, in order to generate the same wealth after five years.; the results were that investors needed to commit 44% more capital to SEO firms than to non-issuers of similar size, in order to achieve the same wealth level five years later. These findings provide strong support for both the market timing and signaling theories, suggesting that managers might exploit periods of overvaluation at the time of the equity issuance, which later correct in the form of long-run underperformance. Indeed, the theory according to which managers of firms profit by selling shares during "windows of opportunity", when their equity is overvalued, was particularly examined by Clarke, Dunbar, and Kahle (2004), who examined registered secondary equity offerings from 1980 to 1996. At aggregate level, they found that the mean of 3- and 5-year abnormal returns for the sample were respectively 5.93% (p = 0.876) and 1.99% (p = 0.605), results not statistically significant and therefore insufficient to confirm the windows-of-opportunity hypothesis. Nevertheless, the outcomes dramatically changed when distinguished between sales by insiders (individuals with presumably better knowledge of the firm and its valuation), and "noninsiders"; indeed, when the seller was an insider, the average 3-year abnormal buy-and-hold return was -15.66% (p = 0.046) and the 5-year abnormal return averages -33.33% (p = 0.015), consistent with the windows of opportunity hypothesis, according to which insiders appear to sell when they perceive shares to be overvalued, leading to long-term underperformance once the market corrects. By contrast, in the case of "noninsiders" sales, long-run performance was generally positive but not significant, suggesting that their motives of selling were less opportunistic[10].

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[8] A buy-and-hold return (BHR) is the cumulative return an investor would obtain by purchasing a stock on the event date (or a reference date) and holding it without trading until the end of the evaluation horizon. It is calculated as the compounded product of daily (or periodic) returns over the holding period.

[9] The wealth relative is the ratio of post-issue returns of issuing firms to matching firms.

[10] For example, they may simply be trying to reduce their holdings for diversification purposes. Alternatively, also existing shareholders may be selling for nondiscretionary reasons (e.g., a fired CEO would likely sell his or her shares); in this case, the sale is also non-opportunistic.

Jegadeesh (2000) extends the analysis of the long-term performance by comparing SEO firms to a variety of benchmarks between 1970 and 1994, finding that these SEO issuers significantly underperform all the chosen benchmarks over the five years following the issuance, where similar levels of underperformance was identified for both small and large firms, and both growth and value firms. Specifically, in the research, two equal-weighted indexes were compared: one including all firms, comprising those that undertook a SEO, and the other excluding issuers. The equal-weighted index return of all stocks returned 16.9% per year, compared to 19.8% for the index without new issues, identifying a statistically significant performance gap of 2.9% per year.

Over a 60-month horizon, issuing firms produced an average return of 59.4%, compared to the average 60-month return on the equal-weighted index of all stocks that was 79.9%, implying that the firms that issued equity underperformed by 20.5%; when comparing index returns with and without new issuers, the gap widened to 34.9%, which is an economically significant difference. Importantly, this underperformance persisted even when benchmarks were matched by firm characteristics that have been empirically shown to be related to the cross-section of returns, namely size, market-to-book ratio, earnings-to-price ratio, lagged six-months returns and lagged 36-months returns[11]. The results shows that the lowest level of underperformance occurred when benchmarks were matched on firm size and market-to-book-ratio, however even with this best-case evaluation, SEO firms still underperformed significantly; additionally, results weren't sensitive to benchmarks matching on additional characteristics, such as earnings-to-price ratios and past returns, suggesting that in the long-run underperformance may not be entirely explained by observable firm traits, but is likely inherent with the equity issuance event itself, in line with market timing and signaling theories.

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[11] Size: Banz (1981) finds that small firms on average outperform large firms.
Market-to-book ratio of equity: Firms that issue seasoned equity tend to have higher-than-average growth opportunities. Because of the growth options available to them they trade at higher market-to-book ratios than the market average. Rosenberg et al. (1985), Fama and French (1992), Lakonishok, Shleifer, and Vishny (1994), and other studies find that low market-to-book firms (value stocks) outperform high market-to-book firms (growth stocks).
Earnings-to-price ratio: Firms that issue seasoned equity tend to have low earnings-to-price ratios for the same reasons that they have high market-to-book ratios. Basu (1977) shows that high earnings-to-price ratio firms on average earn higher returns than low earnings-to-price firms.
Lagged six-month returns and lagged 36-month returns: Seasoned equity issues are typically preceded by large stock price run ups. Jegadeesh and TItman (1993) and DeBondt and Thaler (1985) show that future stock returns are related to lagged six-month and 36-month stock returns.

1.4 Follow-On Equity Issuances in Distressed Market Conditions

While the evidence on short- and long-term performance provides a general framework for understanding investor reactions to equity follow-on offerings, it is important to note that these dynamics can change substantially under peculiar market circumstances, particularly in distressed or crisis conditions, where issuers are often compelled to raise capital out of necessity rather than opportunistic choice. Raising equity in distressed settings, therefore, presents distinct challenges and dynamics compared to normal times, and during periods of financial turmoil or when a firm itself is under financial distress, stock return volatility becomes of particular interest among the factors that were discussed earlier as determinants of SEO announcement returns. Generally, stock return volatility reflects uncertainty and is often considered as a proxy of information asymmetry, thus if investors perceive a firm's stock as highly volatile, they may infer that future cash flows are less predictable, or that firm insiders possess superior information than outsiders. As outlined in the literature[12], such information asymmetries, in the context of equity issuance, are often associated with market timing behavior and, following this intuition, empirical evidence found that stock return volatility correlates with lower likelihood of issuing seasoned equity, increased underpricing and more negative announcement returns (Walker & Wu, 2019). For distressed issuers, however, the adverse impact of volatility may be attenuated, as the negative signal associated with the choice to issue equity is less meaningful since these firms have less access to the debt market and therefore, may avoid equity issuance costs associated with the pecking order considerations denoted earlier; in fact, issuers that are in, or near, financial distress face additional costs in obtaining finance and for these companies, raising debt capital may be more costly due to higher interest rates. Additionally, in more extreme circumstances, further credit may simply be unavailable due to prior debt covenants or unwillingness of lenders to extend further credit; thus, if debt is unavailable for one of these reasons, the negative signal associated with the choice to issue equity will be weaker. Furthermore, issuing equity should improve a firm's ability to repay debt (it's solvency), thereby increasing debt holders' wealth, but this shift in value occurs partly at the expense of pre- issue shareholders, as described by Myers (1977)[13]. However, stockholders

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[12] Alti and Sulaeman, 2012, Corwin, 2003, and Lee and Masulis, 2009.

[13] This is the debt overhang problem, originally described by Myers (1977), that refers to a situation in which in a firm with high outstanding debt, existing shareholders are reluctant to issue equity to fund positive-NPV investment opportunities, because most of the benefit would flow to creditors, while shareholders bear dilution.

in distressed firms may still receive benefits from equity issues, as the infusion of capital could preserve the firm's continuation value[14], particularly if the company has valuable projects that need finance; consequently, even if current shareholders lose part of the value due to dilution and to creditors, they might still experience improved conditions than facing default or liquidation.

Nevertheless, empirical evidence indicates that distress remains a penalizing factor; Walker and Wu (2019), analyzing a sample of U.S. distressed and non-distressed companies that undertook a seasoned equity offering between 1994 and 2015, report that distressed firms (comprising about 40% of the data set), experience significantly worse abnormal announcement returns than non-distressed counterparts. Using a seven day event window [-3,+3] and the filing date as day 0, the full SEO sample exhibited a mean abnormal announcement return of -4.90%, significant at the 1% confidence level, with distressed issuers performing on average 1.5% worse than non-distressed issuers; this suggest that, despite the mitigating factors outlined above, distress still carries a strong reputational and valuation penalty when raising capital through SEOs. Furthermore, the same study analyze the relationship between announcement abnormal returns and three proxies for the firm prospects, respectively growth in R&D, long run value-to-book and institutional ownership; the results show that distressed SEO firms with high growth in these measures, broadly exhibit better abnormal announcement returns, raise more equity, invested more post-offering, improved operating performance in the subsequent year and faced lower probability of delisting due to bankruptcy or poor performance; hence, this evidence collectively suggests that investors interpret these proxies as credible indications of firm quality, even in adverse financial conditions.

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[14] The value of staying in business.

Chapter 2: The COVID-19 Impact on the Global Travel and Tourism Industry

Building on the prior chapter's final discussion of financing under distress, the COVID-19 pandemic constituted a systemic shock that precipitated severe financial strain across industries and, most markedly, within the travel and tourism sector, in which many issuers turned to seasoned equity offerings in response to collapsing revenues, heightened uncertainty, and constrained access to debt; therefore, it is essential to outline the sectoral impact of the pandemic and the accompanying policy measures adopted to contrast the crisis, in order to contextualize the environment in which these equity issuances, that are empirically analyzed in the following chapter, occurred.

While the global COVID-19 pandemic began as a health crisis in early 2020, it rapidly evolved into a profound economic shock, causing severe negative repercussions on the global economy, in many respects even surpassing those of the Great Financial Crisis. To contain the spread of the virus and effectively "flatten the curve", social distancing, lockdowns, curfews and many other measures were implemented by governments and communities across nations, leading, inevitably, to an economic downturn; consumer service businesses were forced to close or operate at limited capacity, unemployment surged to unprecedented levels, and demand for goods and services plummeted in multiple industries.

In particular the hospitality and travel-related industries, serving as a fundamental pillar of many European and global economies and playing a critical role in generating employment opportunities and fostering economic growth, were severely affected specifically because they exhibit unique structural features that make them especially vulnerable to financial challenges and crisis; these characteristics, including high operating risk, capital intensity, and heavy reliance on external financing, were starkly exposed and exacerbated by the outbreak of the COVID-19 pandemic, leading to a widespread disruption and acute financial stress (Ashraf, Sarhan, de Almeida, & Teles, 2025).

2.1 The Global Travel Industry Before COVID-19

The global travel and tourism industry had been experiencing a continuous growth since 1950, emerging as one of the fastest growing economic sectors until the outbreak of the COVID-19 pandemic, that marked a turning point for this industry dramatically altering its trajectory and reshaping industry dynamics; particularly, the steady growth in the years preceding the pandemic crisis was mainly driven by increasing disposable incomes, improved transportation infrastructure, and the rise of digital platforms, that permitted international tourist arrivals to experience a consistent growth, with the United Nations World Tourism Organization (UNWTO) reporting record figures annually. Specifically, from 2017 to 2019, international arrivals steadily increased from 1.3 billion in 2017, to 1.4 billion in 2018, ultimately reaching 1.5 billion in 2019, with France, Spain, the USA, China, Italy, Turkey, Mexico, Germany, Thailand, and the United Kingdom, ranking as the ten most visited destinations, attracting together more than 600 million travelers (WTTC, 2019).

Travel and tourism have always played a pivotal role in the global economy, contributing up to 10.3% of global GDP in 2019, equivalent to $8.9 trillion, and supporting approximately 330 million jobs (including direct, indirect and induced impacts), which represented 10.4% of total employment globally; notably, this sector consistently outperformed global economic growth for nine consecutive years, achieving a growth rate of 3.5% in 2019, compared to the global economy's overall growth rate of 2.5%, underscoring the vital role of this industry in driving socio-economic development, poverty alleviation, and employment creation.

Before COVID-19, the global travel industry was highly diversified, comprising various segments including leisure and business travel, domestic and international tourism, with leisure travel significantly accounting for most of the global tourism spending at 78.6%, in 2019, whereas business travel accounted for the remaining 21.4%; also domestic tourism represented a significant share of global travel, amounting to 71.3% of total tourism expenditure, whereas international tourism revenues accounted for 28.7%, underlining that, while countries often tend to focus on international tourism, domestic tourism should be considered a powerful tool to generate employment and economic growth, as well as reduce unemployment and upgrade infrastructure (WTTC, 2020). Additionally, even if international tourist arrivals (overnight visitors) had grown 4% worldwide[15] in the period between January to September 2019, compared to the same period the previous year, this type of tourism was already significantly

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[15] The Middle East countries led the growth trend with an increase of +9%, followed by Asia and the Pacific and Africa, both at +5%, while Europe and the Americas enjoyed a more moderate increment, respectively +3% and +2%.

affected by the global economic slowdown, trade tensions, rising geopolitical challenges, like the prolonged uncertainty about Brexit, which weighed on the growth of international tourism before the COVID-19 shock (UNWTO, 2019).

2.2 Financial and Operational Impact of the pandemic on the Travel Sector

In 2020, COVID-19 triggered a global economic shock of historic proportions, causing a downturn of approximately 3.5% of worldwide gross domestic product (GDP), making it one of the sharpest annual declines in the last century; employment was severely affected, with roughly 8.8% of global working hours lost relative to the fourth quarter of 2019, the equivalent of the loss of about 255 million full-time jobs, approximately four times greater than the number lost during the 2009 global financial crisis and only in the travel and tourism sector, more than 100 million jobs were put at risk by the pandemic. The labor market suffered this enormous disruption, with the global unemployment rate spiking up to 6.5% in 2020, 1.1% percentage points higher than 2019, equivalent to 33 million additional unemployed people (ILO, 2021).

In light of the conditions brought about by the pandemic crisis and the impositions of travel restrictions to contain the spread of the virus, global tourism was heavily impacted as it experienced its worst year in 2020, when international arrivals drastically declined by 74% compared to 2019; indeed, the year preceding the pandemic was documented as a record year, with about 1.5 billion global travelers, while in the first quarter of 2020 alone, approximately 67 million fewer tourists were registered compared to the same period in 2019.

Worldwide, every tourist destination endured major damage facing a sudden breakdown in visitation and according to the United Nations World Tourism Organization (UNWTO), the decline resulted in a loss of $1.3 trillion revenues, an amount approximately 11 times greater than the revenue shortfall caused by the 2009 economic crisis. All world regions saw a plunge in tourism, with Asia and the Pacific leading the downturn with an 84% decrease, while the Middle East and Africa saw drops of 75%; Europe declined by 70%, and the Americas saw a reduction of 69% (UNWTO, 2021). Under these circumstances, the fundamental and positive contribution to GDP of the travel and tourism sector fall drastically of about 49% in 2020, resulting in a waste of approximately $4.5 trillion in lost output; indeed, the World Travel & Tourism Council (WTTC) reported that the travel industry's share of global GDP almost halved, from 10.4% in 2019, to only 5.5% in 2020, crucially undermining the sector stability and

consequently also halving its relative size and contribution to the worldwide economy within one year. This collapse had deleterious effects on employment erasing years of growth in only a matter of months, causing the reduction of 62 million jobs in the global tourism market, as the industry's workforce declined from 334 million, in 2019, to roughly 272 million in 2020. This negative shock was perceived across the entire tourism and travel system damaging businesses of all sizes, but particularly SMEs (small and medium-sized enterprises), which make up for around 80% of all businesses in the global travel industry, as the COVID-19 crisis particularly revealed the financial fragility of this type of enterprises, emphasizing their limited resilience and lack of resources to cope with changes and costs that such catastrophic shocks entail.

2.2.1 Effects on Airlines and Aviation

April 2020 is regarded as the peak of global travel restrictions, as approximately 66% of the worldwide commercial aircraft fleet was suspended due to government-imposed boarder closure and movement limitation; the outcome of these measures, adopted to cease the spread of coronavirus, drastically hit the airline sector plunging it into a severe crisis. The International Air Transport Association (IATA, 2021) reported that, in the whole 2020, airlines transported only 1.8 billion passengers, that represent a tremendous reduction of 60% compared to the 4.5 billion fliers in 2019; indeed, international passenger demand, measured in revenue passenger-kilometers[16] (RPKs), decreased by 75.6% compared to 2019, with the overall industry-wide air travel demand dropping almost 66% in 2020. In 2019, total industry passenger revenues were recorded at just $189 billion, marking a decrease of 69%, leading to a net loss of $126.4 billion; more precisely, the diminution in air passengers transported experienced in 2020, was the largest recorded since global RPKs started being tracked around 1950. The Middle East region suffered the largest proportion of loss for passenger traffic, with a drop of 71.5% in RPKs versus 2019, followed by Europe (-69.7%) and the Africa region (-68.5%).

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[16] Revenue Passenger Kilometers (RPKs) is a measure of the volume of passengers carried by an airline that is calculated by multiplying the number of revenue passengers by the distance traveled; RPKs measure provide a comprehensive view of an airline's traffic performance.

Air freight stood out as an exception to the overall downturn of air transportation, as the market adapted to keep critical suppliers moving including vaccines, personal protective equipment and vital medical suppliers, despite the substantial drop in capacity from passenger aircrafts. In fact, in 2020, industry-wide available cargo tonne-kilometers[17] (ACTKs) fell by 23.3% leading to a capacity shortage, with the industry-wide cargo load factor up 7.0 percentage points to 53.8%; however, even if at the end of the year industry-wide cargo tonne-kilometers[18] (CTKs) had nearly reached pre-crisis levels, the yearly decline in cargo demand (CTKs) was still the largest since the global financial crisis in 2009, at a sizeable 9.7% year-on-year in 2020, recording it as the worst year for worldwide air transport (IATA 2021).

2.2.2 Effects on Hospitality and Accommodation

Alongside the airline industry, the hospitality sector was likewise severely affected by the COVID-19 shock, since the already mentioned strategies to stem the spread of infection namely, community lockdowns, social distancing, stay-at-home orders and travel and mobility restrictions, resulted in temporary closure of many hospitality businesses and significantly decreased demand for businesses that were allowed to continue to operate (Bartik et al., 2020). The restrictions placed on travel issued by the authorities, led to a sharp decline in customers and hotel occupancies, corresponding in a contraction in operating cash inflows from sales and consequently in revenues, inevitably leading to both liquidity and solvency problems, increasing the risk of businesses failure. (Gursoy & Chi, 2020). The constraints on travel that caused disruptions in the airline sector, mentioned in the paragraph before, indirectly affected also the hotel industry, since a significant portion of hotel revenues depends on airlines, that allow tourists transportation worldwide.

In 2020, numerous major events in Europe and North America, including the 2020 Summer Olympic Games and the UEFA EURO 2020, were cancelled, yet also business, social, and all kinds of sporting events worldwide were suspended, contributing to a significant decline in accommodation occupancy; indeed, 2020 marked the worst year for hotel occupancy since the 1993 Great Recession and statistically eight in ten hotel rooms remained vacant, with the global occupancy rate experiencing approximately a 40% drop compared to an average of around 63%

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[17] ACTK represents an airline's cargo carrying capacity.
[18] CTK measures actual cargo traffic, calculated by multiplying the tonnage of freight carried by the distance flown.

in previous years. For instance, just in Italy, by late March 2020, hotel occupancy had plummeted by 96% compared to 2019, almost emptying hotels across the country; although less extreme, sharp declines were also recorded in China (−68%), the United Kingdom (−67%), the United States (−59%), and Singapore (−48%). The substantial decline in hotel occupancy let to a sharp reduction in staffing levels, as the hospitality industry encountered difficulties in fulfilling payroll obligations; the number of jobs lost was estimated at approximately 3.9 million (Alotaibi & Khan, 2022).

The hospitality industry worldwide, encountered severe liquidity issues due to high fixed costs and debt obligations, forcing some to file for bankruptcy protection or permanent closure, after enduring months of near-zero revenue; in certain instances, hotels ultimately tried to generate minimal revenues, repurposing their structures as quarantine facilities, or temporary housing for healthcare workers, however, aside from these specific cases, each type of accommodation facility was obliged to roll back prices and undertake workforce downsizing, suffering significant losses.

2.2.3 Effects on Travel Agencies and Tour Operators

The measures implemented in response to the COVID-19 shock, the shutdown of international travel, together with the collapse of the airline and hotel industries, also had a profound impact on travel agencies and tour operators and all the related segments of the tourism value chain. With border closures and quarantines in place, individuals across the globe were compelled to cancel their holiday plans, leading to a dramatic decline in demand for tourism intermediaries; as a result, numerous travel agencies were forced to downsize and in the most severe cases to cease entirely their activity, due to the financial strain of the global pandemic on their businesses. For instance, in august 2020, the TUI Group, considered the largest tour operator in the world, reported a net loss of €2.3 billion (from October 2019 to June 2020) as a result of the COVID-19 pandemic; of this amount, €1.5 billion was attributable to the quarter from April to June 2020, where revenues fell to just €75 million, representing a 98% decline compared with the same quarter of 2019. Furthermore, following the implementation of restrictions to contain the spread of the virus, tour operators had to cancel scheduled package tours either because the trips were no longer feasible, or because clients chose to withdraw due to safety concerns regarding international travel (Derco, 2022). In addition to the difficulties arising from the

pandemic and the sharp decline in consumer demand, traditional travel agencies and tour operators also faced heightened competition from online platforms, such as Airbnb and Booking.com, which had already been challenging their business models before COVID-19; in fact, the pandemic further exacerbated this competitive pressure, as these digital platforms became even more efficient and attractive, by offering comparable services and products at discounted prices. Therefore, surviving in this landscape proved even more challenging for small travel agencies and tour operators, given the increasingly competitive market environment, with fewer resources available because of the acute crisis.

2.3 Institutional and Corporate Responses to the COVID-19 Crisis

2.3.1 Government's Interventions and Recovery Measures

In response to the COVID-19 crisis, national authorities of economies all over the world, launched unprecedented support and services to households and businesses, to mitigate the downturn's effects; these services included liquidity support, tax relief, wage subsidies and other job retention initiatives. In particular, in the most affected sectors like the travel and tourism industry, a large number of subsidies were granted by governments to finance a broad range of policy strategies, to soften the impact of plummeting revenues on enterprises. The majority of the tools deployed in these cases consisted of cash transfers, grants, loan guarantees and in numerous instances also banks sought to alleviate the economic burden of debt by suspending firm's loan repayments (Beckles & Jackman, 2024).

In Europe, the European Commission, the European Parliament and EU leaders agreed upon a recovery plan to help the European Union repair the socio-economic damage caused by the coronavirus health emergency and lay the foundations to make the economies and societies of European countries more sustainable, resilient and prepared for the challenges and opportunities of the ecological and digital transition. To help the Continent recover from the impact of the pandemic, EU leaders agreed on an extraordinary €750 billion recovery fund, known as 'Next Generation EU', a financial instrument designed to stimulate a "sustainable, uniform, inclusive and equitable recovery", to prioritize the reconstruction post-COVID by

investing in digital and green transitions, especially providing support to hard-hit sectors; this plan is considered the largest ever EU-funded package aimed at boosting the economy (European Commission, 2023). Furthermore, EU countries established a common framework of travel measures to safeguard freedom of movement in the EU during the pandemic, to avoid the complete shutdown of the travel and tourism sector; some of these initiatives included the "Re-open EU" platform[19] and EU Digital COVID Certificate[20]. Across Europe, public authorities aimed to support jobs in every field through furlough and payroll assistance schemes, and especially taxes were cut or deferred wherever possible. In the United Kingdom, for instance, the government temporarily reduced the VAT (Value Added Tax) for the hospitality sector to 5%, from 15 July 2020 to 30 September 2021, followed with by a transitional rate of 12.5% from 1 October 2021 to 31 March 2022, after which the standard rate was reinstated (HM Revenue & Customs, 2020).

The U.S. government, as part of the support program exposed in the $2.2 trillion Coronavirus Aid, Relief, and Economic Security Act (Cares Act) of 2020, along billions in loans and grants for hotels, restaurants and small travel businesses, agreed a $25 billion bailout for the struggling airline industry, to support American workers and to preserve the strategic importance of the airline industry in the U.S. (Rushe, 2020). Across the Asia-Pacific area, many countries promoted domestic tourism to compensate for lost foreign visitors, as governments paired strict international travel bans with significant domestic stimulus; for example, in in Japan, the "Go To Travel" subsidy program, that began in July 2020, covered 50% of domestic trip costs, up to 20,000 yen ($175) per person per night (Funashima & Hiraga, 2023). Travel regulation management in the Asia-Pacific region included, also, "travel bubbles" (allowing people in specific areas to resume travelling without quarantine restrictions) and phased boarder reopening, coupled with health protocols to rebuild travel confidence, such as the Australia-New Zealand travel corridor; indeed, these two countries contribute heavily to each other's tourism industry, with Australia being the New Zealand's largest source of international tourists

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[19] 'Re-open EU' was a public service web platform and app that provided the latest updated information on COVID-19 travel restrictions, health measures, the EU Digital COVID Certificate and the epidemiological situation in EU and Schengen-associated countries. Council of the European Union, 2020).

[20] The EU Digital COVID certificate has been a crucial element in Europe's response to the COVID-19 pandemic, with more than 2.3 billion certificates issued, and covered COVID-19 vaccination, test and recovery, facilitating safe travel for citizens, being a key element to support Europe's hard-hit travel and tourism industry. The certificate facilitated safe travel for citizens across the European Union when Member States restricted travel on the grounds of public health; in addition, it allowed to coordinate the lifting of these restrictions from the moment it was possible. (European Commission, 2022).

before the pandemic, accounting for about 1.5 million arrivals, or approximately 40% of total visitors in 2019.

2.3.2 International Organizations' Support and Global Coordination

Alongside Governments, also international institutions played a pivotal role in guiding and coordinating the recovery of economies worldwide, as well as stimulating the relaunch of the most affected industries by the COVID-19 pandemic. Indeed, in 2020, the World Tourism Organization (UNWTO) established the Global Tourism Crisis Committee to guide the sector's response to the crisis, in order to build the foundations for future resilience and sustainable growth; the Committee comprised representatives of UNWTO's Member States and Affiliate Members, together with the World Health Organization (WHO), the International Civil Aviation Organization (ICAO), and the International Maritime Organization (IMO). To ensure a coordinated and effective response, also the private sector was represented, with delegates from the Airports Council International (ACI), Cruise Lines International Association (CLIA), International Air Transport Association (IATA) and World Travel and Tourism Council (WTTC); during the Committee's meetings, member leaders were exhorted to reconsider tax and employment policies related to tourism and to assist businesses survival and recovery as effectively as possible (UNWTO, 2020). In April 2020, Governments were addressed by the UNWTO to lift travel restrictions "as soon as it was safe to do so", to enable societies to benefit from the social and economic contributions of tourism; therefore, from January 2020, approximately 96% of all worldwide destinations had introduced full or partial mobility limitations, as global tourism had reached a standstill economically unbearable, which had to be reversed promptly. The Global Tourism Crisis Committee developed a Recovery Plan for the travel and tourism sector, focused on reopening borders while rebuilding consumer and investor confidence, and launched a Recovery Technical Assistance Package[21] to support countries in stimulating growth and promoting their tourism industries in the challenging months ahead (UNWTO, 2020). The International Monetary Fund (IMF) responded to the

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[21] The World Tourism Organization (UNWTO) released the Tourism Recovery Technical Assistance Package to offer guidance to Member States in response to COVID-19; the package was structured around three main pillars: economic recovery, marketing and promotion and institutional strengthening and resilience building, and was designed to support governments, the private sector and donor agencies face this unprecedented socio-economic emergency.

coronavirus crisis with unprecedented scale, especially providing financial assistance to protect the most vulnerable member countries, setting the foundation for an inclusive and sustainable recovery; it temporarily doubled the access to its emergency facilities, the Rapid Credit Facility (RCF) and Rapid Financing Instrument (RFI), allowing it to meet increased demand for financial assistance from member counties during the crisis. Furthermore, the IMF extended its debt service relief through the Catastrophe Containment and Relief Trust (CCRT) to 29 of its most fragile member countries and called on bilateral creditors to suspend debt service payments from the poorest countries; the Fund provided also real-time policy advice to over 160 countries, addressing urgent issues such as cash management, financial supervision, cybersecurity and economic governance. In particular, the IMF worked with tax administrations and budget offices in many countries to help them restore operations and strengthen support to businesses and individuals, without compromising safeguards and accountability (IMF, 2020). The OECD (Organization for Economic Cooperation and Development), through its Tourism Committee, monitored policy responses to the pandemic across countries and advised policy makers on strategic recovery steps to set tourism on a path toward a more resilient and sustainable future; the Organization recognized that the crisis presented an opportunity to reconsider the future of tourism and accelerate longstanding priorities, such as addressing climate change and advancing the transition to renewable energy. Governments were encouraged to restore traveler confidence through the implementation of common safety standards and to lift travel bans where possible, and the OECD, in particular the Tourism Committee, acted as a key advocate for the needs of tourism businesses, particularly SMEs, by promoting targeted support measures to help them withstand the substantial challenges posed by the crisis (Macchiarelli, 2021).

2.3.3 Private Sector Reactions: Cost-Cutting, Capital Raising, and Strategic Adjustments

As it has been consistently explained, firms that relied heavily on face-to-face contact, such as accommodation, food, travel, and sports, were particularly affected by the COVID-19 pandemic and many of them faced acute liquidity problems due to decreased revenues and limited profitability, which deteriorated their financial standing; these enterprises faced serious

challenges in maintaining their financial stability and capital structure, as most of them were forced to adopt cost-cutting measures and rely on external financing through debt and equity. For instance, airline companies, which were among the hardest hit firms in the travel and tourism sector, suffered severe losses that in 2020 amounted at approximately $175 billions; governments provided various financial support packages for airlines, reaching on aggregate to about $173 billion, with varying availability, level and form of support from one country to another (International Air Transport Association, 2020). In some cases, support was granted under conditions that airlines would likely have resisted in other times, such as requirements for equity stakes, restrictions on dividend payments, reductions in carbon emissions and renegotiation of existing liabilities. Nevertheless, airlines that received such "institutional" support were often placed to raise additional capital in the markets, as investor confidence increased in their ability to survive with that type of assistance; in other cases, air carriers enhanced their capital structure through governative-backed leveraging instruments, indeed, according to the United States Government Accountability Office (2021), by the end of 2020, major U.S passenger airlines had added to their capital structure nearly $58 billion in private and federal long-term debt, entering into new secured notes and loan facilities. Lastly, some commercial airlines raised funds through both debt issuance and the sale of common stock; for example, in 2020, United Airlines reported $16 billion in proceeds from the issuance of debt and $2.1 billion from equity issuance, bringing its total debt and finance lease obligations to $27.2 billion by year-end.

The outbreak of the COVID-19 pandemic also exposed and deepened the vulnerability of hospitality firms, causing serious disruption, leading them to undertake drastic measures, especially focused on reducing expenses; for instance, in 2020, Marriott International implemented employee furloughs and reduced workweek schedules, while halting all non-essential spending, new hires outside of mission-critical positions, planned hotel initiatives and brand marketing activities. Additionally, executive salaries were reduced by 50% and alongside other interventions, Marriott estimated that these measures would have reduced 2020 corporate general and administrative expenses by at least $140 million; likewise, Hilton Worldwide announced measures to reduce costs, including cutting approximately 2.100 corporate roles globally and extending furloughs, reduced hours, and corporate pay reductions (LODGING Staff, 2020). With regard to travel agencies and tour operators, because of their near zero-revenues due to the practical impossibility to carry out their activities, state rescue packages

were often adopted, like in the case of the TUI Group, that took on loans of over 4 billion euros as a bailout from the German government, after COVID-19 halted holidays for much of 2020 and early 2021. Therefore, public support was a fundamental lifeline that, alongside private reconstructing efforts, helped the core of the travel and tourism industry worldwide to endure the worst impacts of the pandemic, preventing it from the utter collapse and laying the foundations for the recovery (Reuters, 2022).

2.4 Post-COVID Recovery and Outlook of the Travel Industry

In the years following the outbreak of the pandemic, the global travel and tourism industry showed a remarkable recovery, primarily due to governments and international organization's interventions, which preserved the foundations of the sector preventing the industry from total collapse, cushioning it with subsidies, grants, tax incentives and various support schemes. The projections of the sector's recovery were already anticipated by international organizations, for instance IMF (International Monetary Fund) and UNWTO (United Nations World Tourism Organization), that predicted a full revival solely after 2023. Data from the UNWTO, show that approximately more than 900 million tourists travelled internationally in 2022, around 63% of 2019 levels, doubling the number recorded in 2021, as international tourism progressively began to recover with a remarkable acceleration from 2022 onward; indeed, international tourism reached 1.3 billion arrivals in 2023, representing 88% of pre-pandemic levels, and eventually climbed to 1.4 billion arrivals in 2024, recovering to pre-crisis levels, reaching approximately 99% of 2019 international arrivals. The rebound of international tourism that culminated in 2024, where most destinations reported numbers exceeding pre-pandemic levels, happened differently across areas: the Middle East led global tourism recovery, with 95 million arrivals in 2024, soaring 32% above 2019 levels, Africa welcomed 74 million international tourists, surpassing pre-pandemic numbers by 7% and Europe recorded 747 million arrivals in 2024, edging 1% above 2019 levels. The Americas counted 213 million tourists, recovering 97% of pre-pandemic arrivals, while the Asia-Pacific region hit 316 million tourists, 87% of pre-pandemic levels, but surged 33% from 2023; furthermore, in 2024, tourism was registered accounting for 10% of global GDP, just 0.4 percentage points below 2019, signaling an almost complete recovery and tourism exports hit a record of $1.9 trillion, up 3% from 2019 (UNWTO, 2025). The recovery of the sector was enabled exclusively by worldwide vaccination campaigns

in conjunction with the cautious lifting of the travel restrictions (e.g., lockdowns, quarantines, social distancing, etc.) initiated in 2021, that spread a sense of travel optimism, motivated by the increasing scale of global immunization against COVID-19.

With reference to the labor market, where the pandemic ravaged employment in the travel and tourism sector, leading to the loss of more than 60 million jobs in 2020, bringing the total number employed across the industry to just 272 millions globally, the sector recovered 11 million jobs in 2021 and 21.6 millions in 2022, reaching more than 295 millions and pre-pandemic workforce worldwide levels by the end of 2023 (WTTC, 2023).

Reflecting these upward trends, the outlook for 2025 demonstrates a stabilization of growth rates after the strong rebound in international arrivals and global tourists are expected to grow 3% to 5% compared to 2024, assuming a continued recovery of Asia and the Pacific and a solid growth in most other regions. Nevertheless, economic and geopolitical headwinds continue to pose significant risks; indeed, more than half of UN Tourism Panel of Experts point to high transport and accommodation costs, along with other economic factors such as volatile oil prices, as the main challenges international tourism will face in 2025. Moreover, geopolitical risks (aside from ongoing conflicts) and extreme weather events, are increasingly identified as areas of growing concern (UNWTO, 2025). Looking ahead, also the WTTC (world Travel & Tourism Council) is forecasting a promising future for the next decade, characterized by robust growth and unparalleled career opportunities; indeed, by 2034, the travel and tourism sector is expected to contribute the global economy with a staggering $16 trillion, accounting for 11.4% of the entire economic landscape. This industry is also expected to be a major driver of job creation, providing employment for 449 million people worldwide, equivalent to nearly 12.2% of the global workforce, showcasing its pivotal role in employment and economic development (WTTC, 2025).

Chapter 3: Empirical Analysis of EFOs Performance in the Travel Sector During and After COVID-19

3.1 Research Introduction and Design

The COVID-19 disease led to the adoption of measures to curb the pandemic's dynamic that were unprecedented in peace time and stock markets reflected the worldwide grip of the global health crisis; these were tough times for corporations, with sales markets breaking in and business operations being restricted. Stock markets exhibited significant volatility since the pandemic's inception, with persistent high degrees of uncertainty, arguably making it harder for companies to obtain financing resources. Nevertheless, the collapse of international travel severely reduced revenues across firms in the travel and tourism sector, compelling many of them, even under such adverse circumstances, to rush to the capital markets for fresh equity via follow-on offerings, often within weeks of the initial lockdowns. Indeed, even if, as outlined in the first chapter, follow-on equity offerings represent a common way to raise capital and, in many instances, are usually motivated by market timing reasons to exploit equity overpricing, during these extraordinary times, they represented manly the last resort of financing for companies; in particular, heavily pandemic-affected industries like the travel one, had to face additional financial difficulties and investment uncertainties in the market, which made these firms' advantage of market overvaluation hardly exploited.

The aim of this research is to address the question on how markets valued the announcement of primary common stock seasoned equity offerings (SEOs) for firms related to the travel and tourism industry, during the unparalleled circumstances brought about by the COVID-19 pandemic; indeed, despite the growing literature examining the relationship between the pandemic and the financial markets, there are surprisingly few studies on the impact of COVID-19 on firm-capital-raising activities, particularly via SEOs; thus, investigating market reactions to equity financing operations undertook through public offerings, for firms particularly affected by the pandemic, provides an intriguing avenue for research.

The majority of studies on the topic of EFOs is based on the equity market in the United States and consistently document significant negative price reactions in the form of abnormal returns following these events; to this end and, in order to render the results more directly comparable

with the existing literature, this study examines stock price reactions to SEO announcements in the period after the COVID outbreak, with a focus on U.S. listed travel related companies. Indeed, the U.S. landscape represents a deep, highly regulated, and data-rich market, with extensive post-COVID equity issuance, enabling precise event dating and credible short- and long-run inferences.

Specifically, the research question becomes: *how did the announcement and subsequent execution of equity follow -on offerings affect the stock performance of U.S. travel and tourism firms in the short and long run, and which firm-specific factors explain the variation in these effects?*

As previously stated, while prior research has generally documented negative market reactions to seasoned equity offerings, most studies focused on stable macroeconomic conditions or diversified sector samples. This study departs from existing literature in two ways; firstly, it confines the analysis to a singular period, namely the one linked to the pandemic and isolates a sector facing significant hardship, allowing for a sharper assessment of how industry-specific vulnerability influences market perception of equity issuance. Secondly, it conducts a dual performance analysis, a short-term event study to measure immediate abnormal returns and a long-term assessment of the stock performance after the equity issuance, to capture both the market's initial assessment and its eventual verdict on issuer prospects. By combining these perspectives, this study addresses whether the crisis context and the severely impacted sample mitigated or amplified the usual patterns of SEO underperformance.

The remainder of the study is structured as follows. Section 3.2 describes the development of hypotheses, drawing on the theoretical perspectives reviewed in Chapters 1 and 2. Section 3.3 outlines the data collection process, classification of firms, and extraction of financial and market variables. Section 3.4 presents the methodology for the short-term event study, the long-term performance analysis and the cross-sectional regression analysis. Section 3.5 presents the empirical results and discusses the findings, including robustness checks. This study closes with Section 3.6 that reports final considerations and limitations of the approach.

3.2 Hypothesis Development

The announcement of seasoned equity offerings has been extensively documented in the literature to generate negative short-term abnormal returns, largely attributed to information asymmetry, adverse selection, and perceived dilution effects; however, in the unprecedented context of the COVID-19 pandemic, equity issuance in the travel sector was often motivated less by opportunistic market timing and more by the urgent need to strengthen liquidity. In such setting, the usual interpretation of SEOs as negative signals of firm value may be moderated or altered by investors' recognition of the extraordinary economic distress.

Therefore, in line with this reasoning, it is hypothesized:

H1. The announcement of SEOs by U.S. travel-related firms during the period covering the initial pandemic shock and the subsequent recovery, is associated with moderate negative cumulative average abnormal returns (CAARs) in the short-term.

From a long-term perspective, empirical studies occasionally reported significant underperformance following SEOs, often attributed to managerial over-optimism, market overvaluation at the time of issuance, and post-offering operational challenges. The pandemic context, however, introduces a dual possibility: while severe financial distress could have reduced managerial discretion to issue at peak valuations, prolonged operational uncertainty in the travel sector may have impaired post-issue recovery, hence the second hypothesis is articulated as follows:

H2. In the long run, U.S. travel-related firms undertaking a SEO during the period covering the initial pandemic shock and the subsequent recovery, underperform relative to market benchmarks, reflecting persistent challenges faced by the sector, despite the liquidity raised.

Additionally, cross-sectional variation in abnormal returns, can be linked to firm-specific characteristics prior to the equity issuance that shape market perceptions of offering quality and issuer resilience; in this study, the relative offer size (measured as the ratio of gross proceeds to market capitalization) captures the scale of dilution and financing need, the return on assets (ROA) proxies for pre-issue profitability, the debt-to-equity ratio measures leverage and the price-to-book ratio indicates valuation levels. A larger relative offer size is expected to be perceived as more dilutive, harming both short- and long-term returns like higher leverage, that

may signal heightened refinancing risk, while higher profitability should mitigate negative reactions. The sign of the price-to-book effect may differ across horizons: a high valuation could intensify short-term skepticism but facilitate long-term recovery if justified by growth prospects. Consequently, the last hypothesis is stated as follows:

H3. Cross-sectional differences in both short-term CARs and long-term BHARs are significantly explained by firm-specific characteristics, with larger relative offer sizes and higher leverage associated with more negative outcomes, and higher profitability mitigating adverse effects. The effect of valuation is expected to differ between short- and long-term horizons.

3.3 Data

This empirical analysis relies on a sample of publicly traded travel- and tourism-related firms listed on the two primary U.S. equity markets, the NYSE (New York Stock Exchange) and the NASDAQ (National Association of Securities Dealers Automated Quotation), obtained using LSEG (ex Refinitiv) Workspace as primary data source.

The search was conducted within the universe of equity deals and restricted to transactions classified as follow-on offerings under Refinitiv's "Issue Type" field, with the security type limited to common stock; to focus on the travel and tourism sector, the search applied industry filters using the TRBC (Thomson Reuters Business Classification), including:

- Airport Operators & Services
- Passenger Transportation (Ground & Sea)
- Airlines
- Leisure & Recreation
- Casinos & Gaming
- Restaurants & Bars
- Hotels, Motels & Cruise Lines

Only transactions with a "Live" status were included, to ensure the offerings were successfully announced and completed. The event date was defined as the filing date of the offering, with the time frame set from 1 March 2020 to 1 March 2024, capturing the post-COVID period in which the sector faced acute financial distress. The query returned 42 NYSE-listed firms and

65 Nasdaq-listed firms, yielding an initial pool of 107 companies, from which different exclusions where applied; firstly, companies that conducted more than one SEO between 2020 and 2024 were omitted, as multiple offerings can generate overlapping event windows, making it difficult to isolate the price impact of a single announcement, potentially biasing both short-term and long-term return measures. Subsequently, firms with incomplete data were removed, particularly those that had undergone delisting or transitions to private ownership, which interrupted market price histories over the required event window. After applying these criteria, the final dataset consisted of 20 unique firms, all of which conducted an EFO between March 2020 and December 2022; while this narrower window is by necessity shorter than the initially selected period, extending to March 2024, it is preferable for analytical purposes as it better captures the direct effects of the COVID-19 pandemic, being more closely centered on the crisis period itself. For these firms, additional information related to the equity offerings was also collected and stored, namely the filing date, the offer date, the unit offer price of the stocks, and the total proceeds raised through the issuance.

3.3.1 Event Study and Long-Term Analysis Price Data

For each firm in the final sample, daily adjusted closing prices (equally sourced from LSEG Workspace) were collected for both the firm's common stock and the selected benchmark (required to compute abnormal returns), over a [-141, +240] trading-day window centered on the announcement date of the SEO filing. The S&P 500 Equal-Weighted Index was used as the benchmark since, compared to the traditional capitalization-weighted S&P 500, the equal-weighted version reduces the influence of mega-cap stocks and provides a broader representation of market movements across the corporate size spectrum. This choice is particularly appropriate given that the sample of the analysis contains mostly mid-cap and small-cap travel companies, for which reliance on the traditional cap-weighted index could understate relevant market fluctuations.

3.3.2 Cross-Sectional Variables

The final part of the research was conducted using firm-level variables that were obtained, as with the others, from LSEG Workspace, in order to conduct cross-sectional regressions to examine determinants of abnormal performance at company level.

For each of the 20 listed firms, financial and market variables were retrieved for the fiscal quarter immediately preceding the SEO announcement quarter (i.e., the most recent available financial statements before the filing date); this timing ensures that the explanatory variables reflect the firm's condition prior to the event, avoiding post-announcement contamination and they comprise:

- Market Capitalization (MktCap): describing firm size
- Return on Assets (ROA): capturing profitability.
- Return on Equity (ROE): reflecting return generation capacity for equity holders.
- Debt-to-Equity Ratio (D/E): indicating reliance on debt financing.
- Price-to-Book Ratio (P/B): capturing market expectations relative to accounting book value.
- Relative Offer Size: a constructed variable calculated as gross proceeds from the SEO divided by market capitalization, measuring the scale of equity issuance relative to firm size.

These variables are widely used in the SEO literature to explain variations in market reaction and long-term performance, as they capture financial health, capital structure, growth prospects and the perceived cost of issuing equity.

3.4 Methodology

3.4.1 Event Study

Event study analysis is the statistical method through which is typically used to examine return behavior for a sample of firms experiencing a common type of event, where the event might take place at different points in calendar time, or it might be clustered at a particular date. In theory, an event study compares the differences between the returns that would have been expected if the analyzed event, identified in this study by the announcement of an equity follow-on offering, did not occur (normal returns), with the returns that in fact occurred due to the

particular event (observed returns); let $t = 0$ represent the time of the event. For each sample stock i, the return on the security for time t relative to the event, R_{it}, is:

$$R_{it} = K_{it} + e_{it}$$

where K_{it} is the "normal" return (i.e., the expected or predicted return given a particular model of expected returns), and e_{it} is the component of returns which is abnormal or unexpected. Given this return decomposition, the abnormal return, e_{it}, is the difference between the observed return and the predicted return:

$$e_{it} = R_{it} - K_{it}$$

Equivalently, e_{it} is the difference between the return conditional on the event and the expected return unconditional on the event; thus, the abnormal return is a direct measure of the unexpected change in securityholder wealth associated with the event (Kothari & Warner, 2007). A model of normal returns must be specified before an abnormal return can be defined and a variety of expected return models (e.g., market model, constant expected returns model, capital asset pricing model) have been used in event studies. One of the most common model used to analyze the future prospects of a firm and the one employed in this research is the market model, which is developed based on the actual returns of a benchmark index and the correlation of the firm's stock with this market proxy; this model assumes a stable linear relation between the market return and the firm's stock return. As a normal performance model needs to be developed, the estimation window needs to be clearly defined and the most common choice, whenever feasible, is to use the period prior to the event window for the estimation window. For instance, if an event study uses daily data and a market model, like in this analysis, the market model parameters can be estimated over N days prior to the event, generally excluding the event period itself from the estimation period, to prevent the occurrence from influencing the parameter estimates of the normal performance model. Subsequently, using the parameter estimates for the normal performance model, the abnormal returns can be calculated.

In this study, as previously mentioned, the event date ($t = 0$) for each company is the filing date of the seasoned equity offering, identified for each firm as the first public disclosure of the

transaction; if the filing occurred on a non-trading day, the day of the offering is aligned to the first subsequent trading day.

When estimating the existence of short-term abnormal returns, the estimation window where normal (market model) parameters (α, β) are estimated is $T = [-140, -60]$ trading days relative to the event date $(t = 0)$, while short-term market reactions are assessed by cumulating abnormal returns over three symmetric event windows, centered on the announcement date, specifically $[-1, +1], [-3, +3]$, and $[-5, +5]$.

3.4.2 Short-Term Impact: Cumulative Abnormal Returns (CARs) Model

The process of the estimation of Cumulative Abnormal Returns (CARs) begins with the computation of daily log-returns for each company in the sample, both for the stock and for the benchmark (S&P 500 Equal-Weighted Index), using adjusted closing prices retrieved from the LSEG Workspace. Log-returns were calculated over the entire time interval $T = [-140, +240]$, as they are required for both the estimation of pre-event parameters and the subsequent analysis of short- and long-term abnormal performance, even though the estimation itself relies only on the pre-event portion of the window. The returns were computed as:

$$r_{i,t} = \ln\left(\frac{P_{i,t}^{adj}}{P_{i,t-1}^{adj}}\right), \quad r_{m,t} = \ln\left(\frac{P_{m,t}^{adj}}{P_{m,t-1}^{adj}}\right)$$

Where $P_{i,t}^{adj}$ denote stock i's adjusted closing price on day t (adjusted for splits and cash dividends), and $P_{m,t}^{adj}$, the adjusted level of the benchmark index.

Assuming that log-returns of individual share prices and the market index are linearly related to each other, it is hypothesized that expected returns follow the market model:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t},$$

estimated by OLS[22] stock-by-stock on the estimation window $T = [-140, -60]$.

Therefore, let $\widehat{\alpha}_i$, $\widehat{\beta}_i$ be the estimated OLS coefficients, the abnormal return to security i for period $t \in W_n$ is:

$$AR_{i,t} = R_{i,t} - \left(\widehat{\alpha}_i + \widehat{\beta}_i R_{m,t} \right)$$

where the expected return is $E(R_{i,t}) = \widehat{\alpha}_i + \widehat{\beta}_i R_{m,t}$, is estimated in the days of the event windows, using the market returns observed in those specific days.

Hence, for each event window, $W_1 = [-1, +1]$, $W_2 = [-3, +3]$, and $W_3 = [-5, +5]$, the cumulative abnormal return for firm's stock i is:

$$CAR_{i(W_n)} = \sum_{t \in W_n} AR_{i,t}$$

In the event study literature, the focus almost always is on the mean of the distribution of abnormal returns and cumulative abnormal returns and typically, the specific null hypothesis to be tested is whether the mean abnormal performance is equal to zero; thus, for a sample of N stocks, the cross-sectional average abnormal return and its cumulative version are:

$$AAR_t = \left(\frac{1}{N}\right)\sum_{i=1}^{N} AR_{i,t}, \qquad CAAR_{(W_n)} = \left(\frac{1}{N}\right)\sum_{i=1}^{N} CAR_{i(W_n)}$$

For each abnormal performance measure investigated, a test statistic is computed and compared to its assumed distribution under the null hypothesis that mean abnormal performance equals zero. Specifically, in order to evaluate the results of the event study, two parametric significance

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[22] OLS (Ordinary Least Squares) is a regression method used to estimate the intercept and slope coefficients of the market model by minimizing the sum of squared residuals. In this context, it is applied individually to each firm's return series over the estimation window [−140, −60], in order to obtain firm-specific parameters (α, β) that represent the normal return–market relationship in the absence of the event.

tests[23] are applied in this research; the first one is a time-series t-test with standard errors built from the cross-section and the second one is a BMP-style[24] standardized cross-sectional Z test, which scales firm-level abnormal performance by pre-event residual volatility to mitigate event-induced variance, assuming cross-sectional independence. This independence is assumed because the residual-correlation diagnostics, conducted in this context, show economically negligible co-movement across firms; indeed, the average pairwise correlation of market-model residuals is -0.0076 in the estimation window $[-140, -60]$ and 0.0141 in the event window $[-5, +5]$, indicating no material cross-firm dependence after the market-model adjustment. The null hypothesis is rejected if the test statistic exceeds a critical value, corresponding to two-sided significance levels[25] of 10%, 5%, and 1%, meaning that $H0:$ $mean\ abnormal\ performance = 0$ is refuted respectively when $|stat| >$ $1.64, 1.96, 2.58$ (standard-normal critical values).

3.4.3 Long-Term Impact: Buy-And-Hold Abnormal Returns (BHARs) Model

Because biases might be persistent and arbitrage forces might take a long time to correct mispricing following a wide range of corporate events, like an initial public offering or a seasoned equity offering, a vast body of literature hypothesizes and studies abnormal performance horizons in the subsequent years after such operations, documenting that abnormal returns spread over long horizons; the buy-and-hold abnormal returns ($BHARs$) approach is the most widely used. A $BHAR$ measures the difference between the buy-and-hold return an investor would earn by holding the stock from the SEO announcement to a future horizon H, and the expected buy-and-hold return implied by the market model applied to the benchmark (S&P 500 Equal-Weighted Index); therefore, to assess whether the announcement of the event has a significant impact on the long-term stock market performance, it is necessary to evaluate the firm's long-term investment performance relative to the market index.

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[23] Parametric tests (at least in the field of event studies) assume that the individual firm's abnormal returns are normally distributed, whereas nonparametric tests do not rely on any such assumption.

[24] The BMP test is the standardized cross-sectional test from Boehmer, Musumeci, and Poulsen (1991) used in event studies to test whether average abnormal performance is zero while allowing for event-induced variance.

[25] "Two-sided significance levels" means the test looks for effects in either direction (positive or negative).

Specifically, in this setting, the estimation of *BHARs* starts by converting data, that are in daily log-returns, to simple (gross) returns through exponentiation. Therefore, for each stock, the actual buy-and-hold gross returns estimated for the post-event long horizons $[0, H]$, with $H \in \{60, 120, 240\}$ trading days and $t = 0$ being the SEO announcement day, are:

$$1 + BHR_{i,[0,H]} = \prod_{t=0}^{H}(1 + R_{i,t}) = exp(\sum_{i=1}^{H} R_{i,t})$$

with $BHR_{i,[0,H]} = \prod_{t=0}^{H}(1 + R_{i,t}) - 1 = exp(\sum_{i=1}^{H} R_{i,t}) - 1$.

Respectively, expected buy-and-hold gross return under the market model are:

$$1 + EXP_{i,[0,H]} = \prod_{t=0}^{H}(1 + E(R_{i,t})) = exp(\sum_{i=1}^{H}(\hat{\alpha}_i + \hat{\beta}_i R_{m,t}))$$

with $EXP_{i,[0,H]} = \prod_{t=0}^{H}(1 + E(R_{i,t})) - 1 = exp(\sum_{i=1}^{H}(\hat{\alpha}_i + \hat{\beta}_i R_{m,t})) - 1$, and $\hat{\alpha}_i$, $\hat{\beta}_i$ being the already estimated parameters in the CARs model on the estimation window $T = [-140, -60]$.

Finally, the buy-and-hold abnormal returns (*BHARs*), for each stock i, are equally calculated for every horizon $[0, 60], [0, 120], [0, 240]$ using the formula:

$$BHAR_{i,[0,H]} = BHR_{i,[0,H]} - EXP_{i,[0,H]} = \prod_{t=0}^{H}(1 + R_{i,t}) - \prod_{t=0}^{H}(1 + E(R_{i,t}))$$

Since, also in this model, the hypothesis of abnormal performance is tested on aggregate level across the whole sample, in order to summarize the trend in the long-run impact of EFOs, the average cross-sectional buy-and-hold abnormal return is:

$$BHAAR_{[0,H]} = \left(\frac{1}{N}\right) \sum_{i=1}^{N} BHAR_{i,[0,H]}$$

To test the null hypothesis that in the sample, the mean cumulative of buy-and-hold abnormal returns (the $BHAAR$) is equal to zero, a skewness-adjusted transformed normal t-test is employed, correcting the typical cross-sectional t-test for skewed abnormal return distribution. Indeed, long-horizon buy-and-hold returns, even after adjusting for the performance of a matched market portfolio, tend to be right (positively) skewed, because buy-and-hold compounding possibly cause a few large winners to accumulate multiplicatively and pull the mean away from the median; this feature is well documented to cause conventional t-test to over-reject the null of zero abnormal performance (Kothari & Warner, 2007). Furthermore, event-time cross-correlation is unlikely to distort this test because, as in the $CARs$ setting, the average pairwise residual correlations of market-model errors are economically small across $[0, H]$ windows, with values of 0.0147 for $[0, 60]$, 0.0053 for $[0, 120]$, and 0.0056 for $[0, 240]$; hence, no additional dependence correction is applied.

The null hypothesis $H0 : mean\ abnormal\ performance = 0$ is rejected following the same logic used in the short-term setting, that is when the test statistic exceeds the standard-normal critical values of 1.64, 1.96 and 2.58, corresponding to the two-sided significance levels of 10%, 5%, and 1%.

3.4.4 Cross-Sectional Analysis

After the study stage, where the focus was on whether the average abnormal performance across firms differed from zero around the announcement (using $AARs/CAARs$) and over the long-term (analyzing $BHAARs$, the cross-sectional analysis shifts both the question and the unit of analysis; indeed, rather than testing a market-wide mean, it asks why some firms out- or under-performed relative to others, by taking each individual stock's abnormal performance within the windows and horizons previously used to study the phenomena in aggregate.

The cross-sectional analysis aims to examine the potential drivers that influenced the heterogeneity of stock price reactions to EFO announcements, linking the abnormal performance to firm characteristics. Specifically, the $CARs$ and $BHARs$ employed in this part

of the study are merely the stock-by-stock abnormal performance measures constructed earlier, where they were examined on aggregate level, in the event windows $[-1, +1], [-3, +3], [-5, +5]$ and horizons $[0, 60], [0, 120], [0, 240]$; indeed, in this other setting, the metrics are examined individually as dependent variables and regressed on a compact set of pre-SEO attributes, measured prior to the event to preserve temporal ordering and avoid post-event contamination. Following the data design described at the beginning of the research, all regressors were taken for each firm in the quarter immediately preceding the quarter of the equity offering announcement; the initial pool of candidates included log market capitalization, the log of the relative offer size, profitability (ROA and ROE), leverage (debt-to-equity), and valuation (price-to-book). For comparability and interpretability reasons, continuous regressors are log-transformed where appropriate and mean-centered, so that the intercept represents expected abnormal performance for a firm with average characteristics, and the slope coefficients can be read as partial effects around the sample mean. Two exclusions are warranted on both statistical and economic grounds; first, log_MktCap_c is dropped because is almost perfectly collinear with $log\_Rel\_Offer\_c$, that is defined as the gross proceeds of the SEO scaled by market capitalization, as their near-unit correlation inflates standard errors, destabilizes coefficient signs, and undermines identification of separate effects. Therefore, it is chosen to retain only the relative measure ($log\_Rel\_Offer\_c$), since is directly tied to the equity follow-on offering[26] and closely maps to the dilution, whereas market capitalization alone represents a generic size proxy with weaker event-specific interpretation. Consequently, ROE_c is also excluded in favor of ROA_c which provides a cleaner measure of operating performance, exhibiting lower collinearity with the remaining covariates in the sample. The resulting compact specification uses $log\,Relative\,Offer$, ROA, $debt-to-equity$, and $price-to-book$, as the core regressors, all centered.

Parsimony in keeping the model as simple as it can be, while still answering the research questions, is also dictated by sample size; indeed, with 20 observations, loading six or more regressors plus an intercept would leave very limited residual degrees of freedom inviting overfitting, inflating standard errors and leading to unstable estimates. Therefore, the regressions must stay deliberately lean, and the adopted four-predictors design keeps the parameter-to-sample ratio within a defensible range for inference. The estimation proceeds via

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[26] Embedding size through the denominator and the financing decision through the numerator

OLS with heteroskedasticity-robust standard errors, which is appropriate in settings like SEOs where residual variance can scale with firm size or offer magnitude.

Estimated coefficients are evaluated with the usual two-sided t-test and 95% t-based confidence intervals are constructed using robust errors; additionally, reported p-values correspond to tests of the fundamental hypothesis $H0 : \beta_j = 0$ and results are annotated with the conventional 10%, 5%, and 1% significance markers.

Interpreted jointly, this specification of the regressions allows to assess whether short-horizon announcement reactions (CARs) and post-event drift (BHARs) covary with economically motivated proxies for financing intensity, profitability, leverage, and valuation, while guarding against multicollinearity, small-sample overfitting and post-event measurement bias.

Formally, the event-study outcome for each company's stock i in the sample is related to the same compact set of pre-SEO explanatory variables and in the event windows where $W_n \in [-1, +1], [-3, +3], [-5, +5]$, the constructed cross-sectional equation[27] is:

$$CAR_{i(W_n)} = \beta_0 + \beta_1\ log\_Rel\_Offer_{i,c} + \beta_2\ ROA_{i,c} + \beta_3\ DE_{i,c} + \beta_4\ PBook_{i,c} + \varepsilon_i.$$

Analogously, over the post-event horizons $H \in \{60, 120, 240\}$ trading days, the long-run specification is:

$$BHAR_{i,[0,H]} = \beta_0 + \beta_1\ log\_Rel\_Offer_{i,c} + \beta_2\ ROA_{i,c} + \beta_3\ DE_{i,c} + \beta_4\ PBook_{i,c} + \varepsilon_i.$$

Potential collinearity among predictors, that was screened ex-ante through pairwise correlations (leading to the exclusion of log_MktCap_c), is complementary monitored after the regressions via VIF (Variance Inflation Factor) diagnostics, reported for the representative $CAR[-1, +1]$ regression, as the set of explanatory variables is identical across all models. VIF measures how much the variance of each coefficient is inflated by linear dependence among regressors; a VIF of 1 indicates no linear overlap, values in the $2 - 4$ range suggest modest correlation, and conventional red flags are $VIF \geq 5$; tolerance, instead, is the measures defined as $1/VIF$ and falls toward zero as collinearity worsens, therefore values below about 0.20 merit attention.

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[27] All covariates presented within the formulated models, carry the subscript c to indicate they are mean centered.

3.5 Empirical Results

To contextualize the results of this study, is useful to begin displaying some commonly used pricing measures (especially in IPOs or SEOs contexts) that help anchor the interpretation of abnormal returns. These measures[28] are particularly informative in a peculiar period such as the one characterized by COVID-19, especially when focusing on a sample of travel-sector firms that were among the most severely affected. The outcomes of these pricing measures are reported in the Table 1 below:

Sample Averages (with Market Run-up)

Avg Discount (%)	Avg Underpricing (%)	Avg Run-up [-70,-10] (%)	Market Run-up [-70,-10] (%)	Avg Excess Run-up (%)	N (priced firms)
13.265	36.23	7.07	-0.8	7.87	20

Table 1: Average Pre-SEO Run-up [−70, −10], Pricing Discounts, and Underpricing

The pre-SEO run-up measures the stock's cumulative performance before the filing and the offer, and is constructed firm-by-firm by compounding daily log stock returns from day −70 to day −10, into a simple cumulative return and then averaging across issuers; the corresponding market path is computed analogously from the S&P 500 Equal-Weighted Index and the excess run-up represents the difference between the sample and the market run-up metrics. The discount compares the SEO offer price to the last close before the offer, measuring how far the deal was priced below the prevailing secondary-market price, while underpricing compares the day of the offer closing price to the offer price, capturing the immediate secondary-market reaction to the issued shares[29].

The window $[-70, -10]$ in which the run-ups are computed, captures the immediate pre-announcement drift while leaving a buffer that avoids the event windows used in the CARs analysis, limiting contamination from rumor or leakage days before the announcement of the

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[28] All statistical computations, tables, and figures presented in this thesis were generated using RStudio, an integrated development environment (IDE) for the R programming language, widely employed in academic research for statistical computing, data visualization, and econometric analysis.

[29] Calculated in line with the method reported in Paragraph 1.3.1 ('Short-Term Price Reactions').

follow-on offering. This timeframe is short enough to reflect conditions plausibly related to deal preparation, yet long enough to smooth idiosyncratic daily noise in a highly volatile COVID period; furthermore, using a market run-up over the identical days controls for broad macro swings that were common during the pandemic. This metrics show that the average run-up of issuing firms over $[-70, -10]$ is about 7.1%, while the market run-up (S&P 500 Equal-Weighted Index) is roughly -0.8%, reflecting overall weakness in broad market conditions over the pre-filing window during the pandemic period; the resulting excess run-up of about 7.9%, indicates a modest pre-filing outperformance of issuers relative to the market, rather than a pronounced run-up. Furthermore, deals appear priced with a sizeable discount, averaging 13.3% relative to the last close before the offer and such concessions, that are well above typical SEO discounts, demonstrate that underwriters and issuers priced aggressively to clear risk in thin and secure demand. In this context, the average underpricing reported is approximately 36.2%, suggesting that offer investors, overall, earned large same-day gains and that, together with deep discounts, signal execution under stress where issuers and banks prioritized certainty of funds and speed over price and that investors demanded significant compensation for underwriting in a sector facing exceptional uncertainty.

To provide context, it is sufficient to cite only few selected studies in which the reported SEO discounts and levels of underpricing in normal-market conditions are typically far lower than those observed in this setting; for instance, Corwin (2003) reports average underpricing of approximately 2.2% during the 1980s and 1990s, and Mola & Loughran (2004), using a large pooled sample, document an average discount of about 3%.

Taken together, the results within this framework suggest that the dominant motive for equity issuances was liquidity need under crisis conditions rather than market-timing to exploit overvaluation; the run-up appear modest and once benchmarked to the market, indicates only a limited pre-filing recovery rather than exuberant conditions. By contrast, large average discounts and severe underpricing are much harsher than in typical SEO studies and if these offerings were primarily driven by market-timing motives, smaller discounts and milder underpricing would have been expected, as issuers would have exploited favorable valuations rather than sell aggressively. Therefore, firms in the travel sector, facing collapsing revenues and high uncertainty due to COVID, essentially had to make their offerings attractive enough to ensure market clearance, regardless of short-term price paths.

3.5.1 Event Study and Long-Term Performance Analysis Results

Having established the pricing characteristics of the offerings, the study now turns to the analysis of the results on the short-term market reaction around the SEO announcement date. The analysis of average abnormal returns ($AARs$), which represents the cross-sectional mean of firm-level abnormal returns on a given trading day relative to the SEO announcement date, reveals distinct patterns of market reaction. While the formal hypothesis testing in this study focuses on cumulative measures, namely $CAAR$s and long-horizon $BHAARs$, across specific event windows, the inspection of daily AARs provides a complementary perspective offering additional insights into the dynamics of the market responses on a day-by-day basis. Therefore, Table 2 reports daily $AARs$ from five trading days before to five trading days after the filing, together with parametric test statistics.

Daily Average Abnormal Returns and Test Statistics (Days −5 to +5)

Day	AAR (%)	Median AR (%)	t-test	BMP-test
-5	1.59	0.82	1.13	3.32***
-4	0.47	-0.54	0.49	0.83
-3	-0.04	0.54	-0.04	-1.69*
-2	-1.41	-1.19	-1.85*	-3.05***
-1	-0.04	-1.38	-0.04	-0.01
0	-0.72	-0.14	-0.55	-0.32
1	-2.76	-2.76	-2.11**	-3.4***
2	0.88	0.68	1	2.37**
3	-0.80	-0.30	-1.17	-1.66*
4	-0.62	-0.40	-0.88	-1.93*
5	0.20	-0.24	0.23	1.15

Table 2: Daily Average Abnormal Returns and Significance Tests (t ∈ [−5, +5])

As shown from the table, In the days immediately preceding the announcement, the evidence is mixed. On day -5, the AAR is markedly positive at $+1.59\%$, with the BMP statistic (3.32, significant at the 1% level) strongly rejecting the null of zero abnormal performance, while the conventional t-test does not reach significance. This divergence illustrates the relative sensitivity of the BMP procedure, which scales abnormal returns by firm-specific pre-event volatility and therefore mitigates the effect of inflated cross-sectional variance. By contrast, days -4 and -3 show no consistent evidence of abnormal performance: the t-tests are close to zero, and only the BMP statistic on day -3 (-1.69, significant at 10%) indicates a mild negative reaction.

The trading day immediately preceding the event (day -1) exhibits virtually no abnormal return (-0.04%), with both test statistics insignificant, similarly to the event day itself (day 0), where the AAR is negative (-0.72%), yet neither the t-test (-0.55) nor the BMP statistic (-0.32) rejects the null, implying that the initial announcement effect is not sharply visible in the cross-sectional average. The strongest evidence of a negative reaction materializes on day $+1$ where the AAR drops to -2.76%, which is highly significant under both tests; this result confirms the well-documented SEO announcement effect in the literature, whereby investors interpret the equity issue as a negative signal regarding firm valuation or future cash-flow prospects.

In subsequent days, the pattern is somewhat erratic. Day $+2$ records a positive AAR of $+0.88\%$, with both test statistics significant ($t = 1.00$; $BMP = 2.37, p < 0.05$), indicating a short-lived partial rebound. However, the effect dissipates quickly: days $+3$ and $+4$, again, display negative $AARs$ (-0.80% and -0.62%, respectively), with the BMP statistics significant at the 10% level in both cases; by day $+5$, abnormal performance stabilizes, with an insignificant AAR of $+0.20\%$.

Overall, the results show that the market response to SEO announcements in the travel sector is characterized by statistically significant negative abnormal returns concentrated on the day immediately after the announcement (day $+1$), in line with prior empirical findings. The BMB test provides stronger and more consistent evidence of significance than the time-series t-test, confirming its greater robustness in samples with heterogeneous firm-level volatility.

The graphical representation in Figure 1, that plots the time series of $AARs$ with 95% confidence intervals, further illustrates the dynamic just described: abnormal returns remain modestly positive in the days before the event, collapse sharply around the announcement, and only partially recover thereafter.
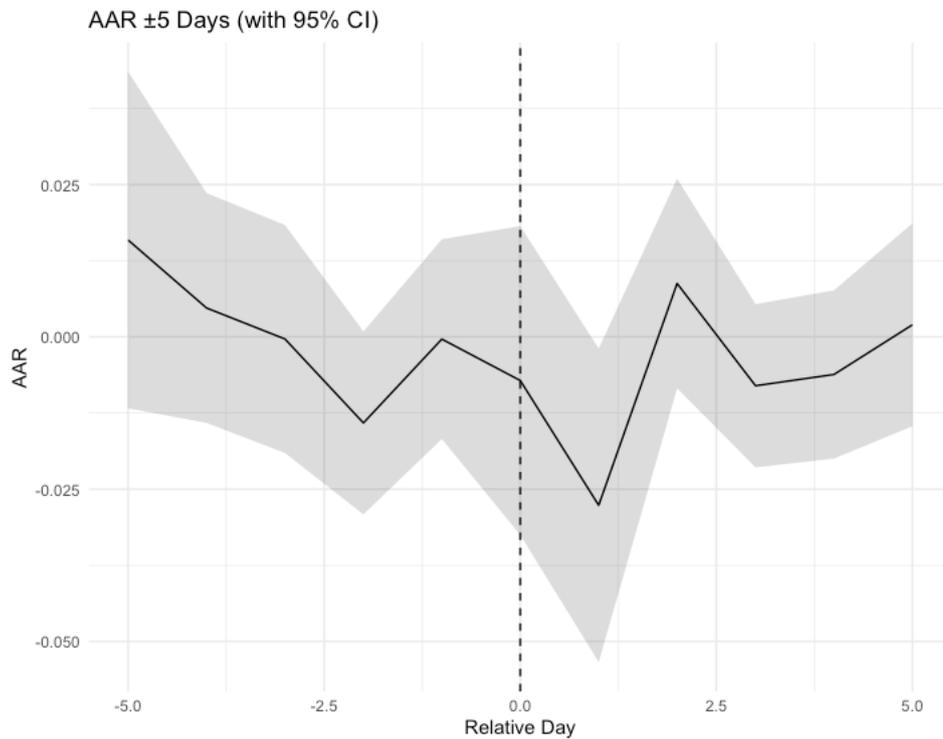
Figure 1: Average Abnormal Returns (AAR) around SEO Announcements (±5 Days, with 95% Confidence Intervals)

While the daily analysis of average abnormal returns ($AARs$) offers a granular view of investors' immediate reactions around the SEO announcement date, the true inferential power of the event study emerges when aggregating these daily effects into cumulative average abnormal returns ($CAARs$), which provide a more robust measure of short-term performance by smoothing idiosyncratic noise and highlighting persistent market responses.

CAAR & Significance by Event Window

Event window	CAAR (%)	t-test	BMP-test
[-1,1]	-3.52	-1.74*	-2.15**
[-3,3]	-4.89	-1.87*	-2.93***
[-5,5]	-3.25	-0.98	-1.32

Table 3: Cumulative Average Abnormal Returns (CAARs) and Test Statistics by Event Windows

As shown in Table 3, the estimated *CAARs* are consistently negative across all three considered windows, amounting to -3.52% in the narrow $[-1, +1]$ window, -4.89% in the broader $[-3, +3]$ interval, and -3.25% over the extended $[-5, +5]$ horizon. Importantly, statistical testing confirms that the abnormal performance is not merely a statistical artifact: both the conventional time-series t-statistics and the robust BMB cross-sectional test detect significance in the $[-1, +1]$ and $[-3, +3]$ windows, with the latter particularly highlighting a strong negative reaction (-2.15^{**} and -2.93^{***}, respectively). Only in the longest horizon, $[-5, +5]$, the results lose statistical strength, likely reflecting the rapid fading of the announcement effect, as the impact of EFOs was quickly absorbed in the pandemic environment characterized by elevated volatility and an intense flow of information. These findings confirm the well-established regularity in the literature that seasoned equity offering announcements are associated with negative short-term cumulative abnormal returns, reflecting investors' concerns. However, what is particularly notable in the present context is that the magnitude of these negative *CAARs* is broadly comparable to those observed in more conventional, non-crisis settings, as shown in the seminal study by Asquith and Mullins (1986). That is to say, although the issuing firms in this sample operated under the extraordinary conditions of the COVID-19 pandemic, when the travel sector was one of the most severely distressed industries, the market reaction did not exacerbate the usual penalty associated with SEOs; this indicates that, despite the heightened uncertainty and the urgent liquidity motivations underlying these offerings, investors did not respond with disproportionately deeper losses than those typically registered in EFO announcements. Rather, the results suggest that the standard negative signaling effect prevailed, but it was not amplified by the crisis environment, implying that the rationale for equity issuance was, at least to some extent, understood and rationalized by the market. Consequently, the evidence lends support to *Hypothesis 1* by demonstrating that the short-term announcement effects are negative, consistent with the canonical view of SEO market reactions, yet not excessively, highlighting that, even in periods of systemic distress, the informational and dilutive concerns associated with equity offerings continue to dominate investor perception without being magnified beyond their normal magnitude.

The examination of long-term post-issue performance through the buy-and-hold framework provides further insights into the trajectory of firms in the sample beyond the short-run announcement effects. Table 4 reports the average Buy-and-Hold Returns (*BHRs*) and Buy-and-Hold Abnormal Returns (*BHAARs*) across three investment horizons, namely [0,60], [0,120] and [0,240] trading days, thereby capturing the cumulative effect of equity offerings over horizons extending up to approximately one trading year.

Average of Actual Buy-and-Hold Returns (BHR) and Buy-and-Hold Abnormal Returns (BHAAR) over [0,H]

Window	BHR (%)	BHAAR (%)	t-test(BHAAR)	p-value(BHAAR)
[0,60]	8.21	-6.59	-1.15	0.2489
[0,120]	22.75	-13.13	-0.91	0.3616
[0,240]	47.41	-41.5	-1.35	0.1776

Table 4: Average Buy-and-Hold Returns (BHR) and Buy-and-Hold Abnormal Returns (BHAAR) over Long-Horizon Windows [0, H]

The results indicate that actual buy-and-hold performance of issuing firms was positive across all windows, rising from 8.21% at 60 days to 22.75% at 120 days and reaching 47.41% at 240 days. However, when benchmarked against the expected market-model-implied returns, the abnormal component is consistently negative, with *BHAARs* of −6.59%, −13.13% and −41.5% for the respective horizons. Although the magnitudes of these abnormal returns suggest that travel-related issuers underperformed their expected trajectories quite substantially, particularly over the longer horizons, the corresponding test statistics remain statistically insignificant, as reflected by p-values of 0.2489, 0.3616 and 0.1776. This lack of significance prevents a formal rejection of the null hypothesis that the long-run abnormal performance is equal to zero, implying that, while the observed pattern is directionally consistent with the second hypothesis (*H2*) of post-issue underperformance, the evidence is not sufficiently robust to assert statistical confirmation.

The graphical analysis in Figure 2 further illustrates this divergence between actual and expected performance paths, with the average actual *BHR* (blue line) rising steadily but

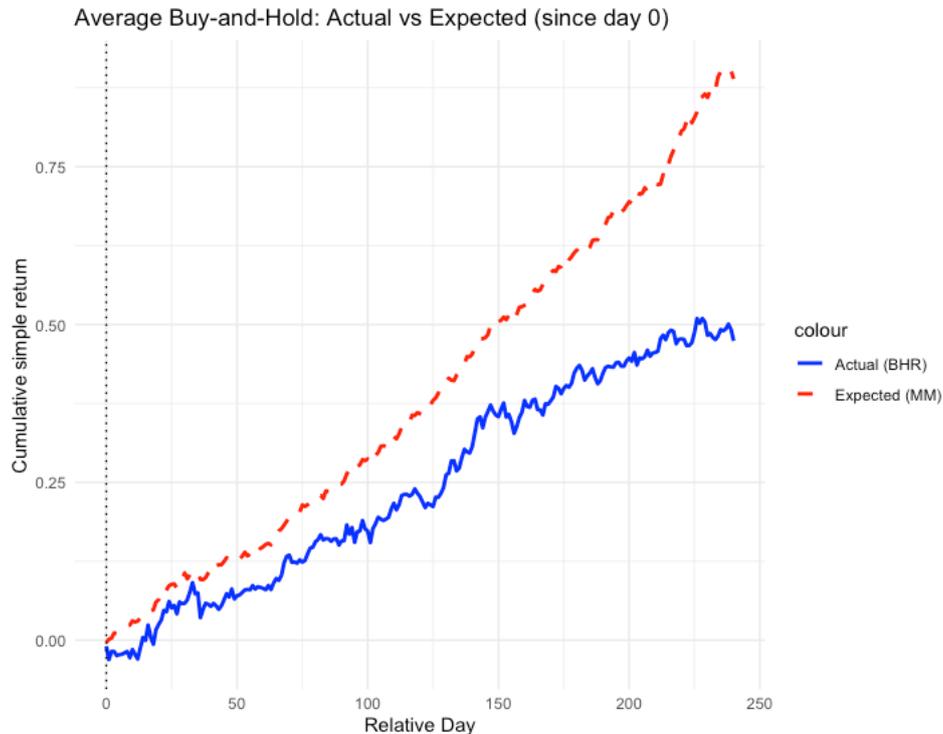remaining below the expected benchmark (red dashed line) almost throughout the entire 240-day horizon.

Figure 2: Average Actual versus Expected Buy-and-Hold Returns (BHR vs. Market Model Benchmark) since the SEO Event Date (Day 0)

This sustained gap between realized and expected returns visually reinforces the notion of underperformance, yet the statistical insignificance highlighted earlier underscores a key limitation of long-horizon buy-and-hold methodologies. As stressed by Barber and Lyon (1997) and Lyon, Barber and Tsai (1999), $BHARs$ are a more realistic proxy for investor experience compared to $CARs$, since they reflect the compounded effect of holding a security over the horizon rather than continuously rebalancing. However, this realism comes at the cost of substantially greater statistical noise: compounding magnifies extreme outcomes, leading to highly skewed and heavy-tailed distributions, which in turn inflate variability and weaken test power. Considering this, the analysis already corrects for the well-documented skewness of buy-and-hold abnormal return distributions by employing the skewness-adjusted t-statistic, thereby ruling out the possibility that the absence of significance is merely a consequence of mis specified test statistics. The fact that the results remain insignificant even after this

adjustment suggests that the underlying driver is not statistical bias, but the elevated volatility and dispersion of firm-level outcomes that characterized the pandemic period. In particular, long-horizon buy-and-hold measures aggregate uncertainty nearly linearly with time, such that even moderate heterogeneity in firm recovery paths, ranging from near-collapse to rapid rebound, can generate wide cross-sectional variation and inflate standard errors. This challenge is exacerbated by the relatively small sample of only twenty issuing firms, which amplifies the influence of outliers, as a few extreme performers can disproportionately affect the mean and further weaken the power of statistical tests.

Therefore, in the context of the pandemic, where volatility was exceptionally high, these econometric limitations become even more pronounced, explaining why large negative average *BHAARs*, though economically meaningful, fail to achieve statistical significance; indeed, while the pattern of negative *BHAARs* aligns with the hypothesis of persistent post-issue underperformance among U.S. travel-related firms, the inference has to remain cautious. The results should be interpreted as indicative of an economically meaningful, but statistically fragile, underperformance dynamic, reflecting both the structural challenges faced by the sector during the pandemic recovery and the econometric constraints inherent in long-horizon event study methodologies.

Taken together, these results suggest a nuanced interpretation: in the short term, the statistically significant negative *CAARs* confirmed the presence of adverse announcement effects, while in the long run, the buy-and-hold evidence points toward economically sizeable but statistically weak underperformance. This contrast highlights both the persistence of post-offering challenges faced by the travel sector during the pandemic recovery and the methodological reality that *BHAR*-based inference, while more reflective of actual investor experience, remains constrained by compounding-induced skewness and volatility amplification, which hinder statistical rejection of the null hypothesis.

3.5.2 Cross-Sectional Analysis Results

The cross-sectional analysis provides an important complement to the event study performed on aggregate level, since it allows the exploration of how firm-specific characteristics

influenced the heterogeneity of abnormal returns across issuers, thereby offering deeper insights into the drivers of both short-term announcement effects and long-term post-issue performance. While the preceding sections documented that aggregate measures, most notably $BHAARs$, at times fail to achieve statistical significance, due to the econometric challenges of long-horizon tests and the compounding of noise, this does not undermine the relevance of firm-level regressions; indeed, in this setting, the dependent variables are the $CARs$ and $BHARs$ of individual stocks previously computed, which earlier were examined on an aggregate basis; this represents a different level of analysis where the determinants of abnormal performance following SEOs, are examined highlighting how company characteristics influence outcomes differently in the short and long run.

A preliminary step before presenting the regression estimates is the examination of the correlation structure among the candidate explanatory variables. Figure 3 display the full correlation matrix including the six initial regressors, where is immediately evident that $log\ Market\ Cap$ is almost perfectly negatively correlated with $log\ Relative\ Offer$, with a coefficient of -0.914, thus raising serious multicollinearity concerns; similarly, the overlap between ROA and ROE suggests redundancy. To mitigate these issues and avoid unstable coefficient estimates, the set of regressors was subsequently narrowed to four variables: $log\ Relative\ Offer$, ROA, $debt-to-equity$, and $price-to-book$,. The reduced correlation table (reported in Table 5) confirms that, after this refinement, the remaining regressors exhibit only modest pairwise correlations, all well within conventional tolerance thresholds, thereby ensuring the robustness of the subsequent regression analysis.
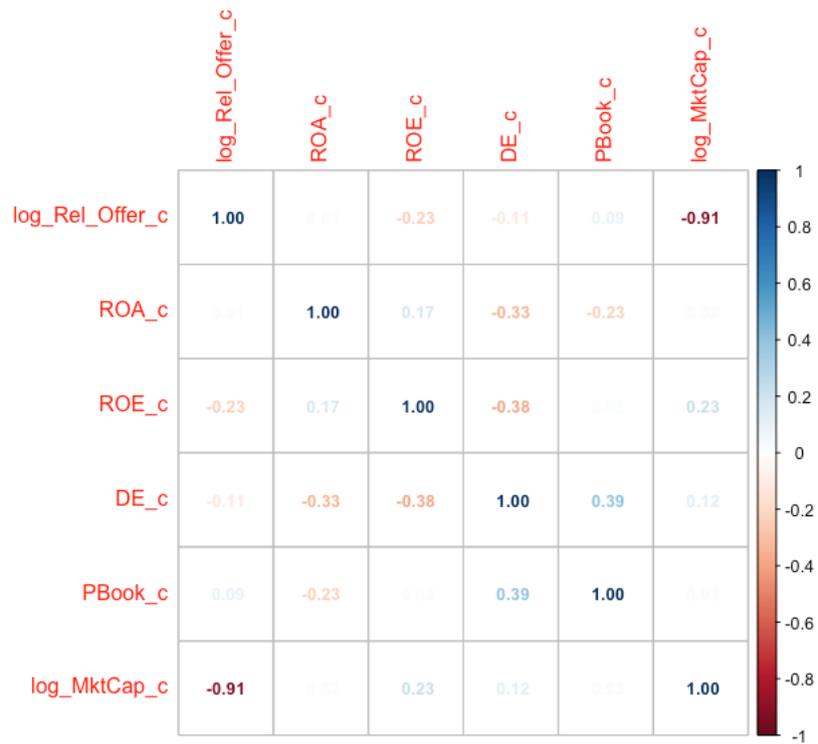
Figure 3: Correlation Heatmap of Initial Centered Explanatory Variables

Correlation Matrix of Centered Controls

	log_Rel_Offer_c	ROA_c	ROE_c	DE_c	PBook_c	log_MktCap_c
log_Rel_Offer_c	1.000	0.015	-0.233	-0.113	0.086	-0.914
ROA_c	0.015	1.000	0.169	-0.333	-0.227	0.017
ROE_c	-0.233	0.169	1.000	-0.384	0.018	0.226
DE_c	-0.113	-0.333	-0.384	1.000	0.391	0.119
PBook_c	0.086	-0.227	0.018	0.391	1.000	0.029
log_MktCap_c	-0.914	0.017	0.226	0.119	0.029	1.000

Table 5: Correlation Matrix of Final Centered Explanatory Variables

After outlining the regressors and their correlations, the following tables present the results of the cross-sectional regressions, using firstly *CARs* and subsequently *BHARs* as dependent variables, across the specified event windows and horizons:

Lean Robust OLS Results for CAR1 | R^2 = 0.32 | Adj. R^2 = 0.139 | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.035*	0.018	-0.074	0.004	-1.93	0.073
log_Rel_Offer_c	-0.009	0.010	-0.031	0.013	-0.85	0.406
ROA_c	0.444***	0.083	0.267	0.621	5.34	0.000
DE_c	0.003	0.002	-0.002	0.008	1.14	0.272
PBook_c	-0.002***	0.000	-0.003	-0.001	-3.62	0.003

Table 6: Robust OLS Cross-Sectional Regressions for CARs over Event Window [-1, +1]

Lean Robust OLS Results for CAR3 | R^2 = 0.23 | Adj. R^2 = 0.025 | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.049*	0.023	-0.099	0.001	-2.09	0.054
log_Rel_Offer_c	0	0.016	-0.034	0.035	0.02	0.988
ROA_c	0.44**	0.171	0.077	0.804	2.58	0.021
DE_c	0.003	0.004	-0.005	0.010	0.82	0.425
PBook_c	-0.002***	0.001	-0.003	-0.001	-3.71	0.002

Table 7: Robust OLS Cross-Sectional Regressions for CARs over Event Window [-3, +3]

Lean Robust OLS Results for CAR5 | $R^2 = 0.269$ | Adj. $R^2 = 0.074$ | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.033	0.020	-0.075	0.010	-1.63	0.124
log_Rel_Offer_c	-0.013	0.014	-0.044	0.017	-0.94	0.364
ROA_c	0.2*	0.103	-0.021	0.420	1.93	0.072
DE_c	0.007*	0.003	0.000	0.013	2.10	0.053
PBook_c	-0.002***	0.000	-0.003	-0.001	-5.46	0.000

Table 8: Robust OLS Cross-Sectional Regressions for CARs over Event Window [-5, +5]

A shown in the tables[30] displayed above (Table 6, Table 7 and Table 8), across all three windows in the short-term regressions, the price-to-book ratio ($PBook\_c$) emerges as the most consistently significant predictor, with a strongly negative coefficient, significant at the 1% level throughout, indicating that firms trading at relatively higher valuations before the offering experienced more negative short-term abnormal returns, consistent with the interpretation that investors view with skepticism highly valued issuers suspecting that, even in a crisis setting, some might be engaging in opportunistic equity financing. Profitability (ROA_c) is also significant and positive in the $[-1, +1]$ and $[-3, +3]$ windows (at the 1% and 5% level, respectively), with magnitudes around 0.44, while it remains marginally positive in the $[-5, +5]$ window, suggesting that more profitable firms were able to mitigate the negative perception of SEOs in the immediate announcement period, as investors regarded profitability as a reassuring signal in an otherwise distressed sector during the COVID crisis. Leverage, proxied by the debt-to-equity ratio (DE_c), becomes weakly significant (at the 10% level) only in the $[-5, +5]$ window, with a positive sign, indicating that higher leverage only starts to matter when markets have a slightly longer horizon to process the issuance news, suggesting that initially the focus is on profitability and valuation, but that with more days investors start to consider the refinancing risk embedded in more levered issuers. The positive sign of the coefficient may be explained by the fact that highly levered travel firms were precisely those

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[30] Coefficients, standard errors, and confidence intervals are reported with limited decimal precision for readability. Some estimates may appear identical across different event windows due to rounding, though they differ slightly at higher precision. For example, the coefficient of *PBook_c* is -0.001637 for the [-1,+1] window, -0.001992 for the [-3,+3] window, and -0.002258 for the [-5,+5] window.

with the most urgent need to refinance, so that investors anticipated that raising equity would improve solvency and reduce distress risk in the near term. The relative offer size ($log\_Rel\_Offer\_c$) proxied by the log of gross proceeds over market capitalization, does not significantly affect announcement-period returns, indicating that investors did not immediately penalize or reward firms for the scale of dilution, possibly because issuance announcements were largely anticipated as necessary survival mechanisms during the pandemic crisis. In terms of explanatory power, the models exhibit modest R^2 values and notably lower adjusted R^2, indicating that while, in particular, profitability and valuation explain a meaningful share of variation, much of the cross-sectional heterogeneity in announcement-period returns remains unexplained; this is unsurprising given the exceptional volatility and sectoral downturn characterizing COVID-19, where market-wide shocks likely overwhelmed firm-specific fundamentals.

Lean Robust OLS Results for BHAR60 | R^2 = 0.25 | Adj. R^2 = 0.05 | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.066	0.061	-0.197	0.065	-1.07	0.300
log_Rel_Offer_c	-0.081**	0.032	-0.149	-0.013	-2.53	0.023
ROA_c	0.198	0.536	-0.945	1.340	0.37	0.717
DE_c	-0.02**	0.008	-0.038	-0.002	-2.35	0.033
PBook_c	0.005*	0.003	-0.001	0.010	1.77	0.097

Table 9: Robust OLS Cross-Sectional Regressions for BHARs over Horizon [0,60]

Lean Robust OLS Results for BHAR120 | R^2 = 0.443 | Adj. R^2 = 0.294 | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.131	0.133	-0.414	0.152	-0.99	0.338
log_Rel_Offer_c	-0.258***	0.070	-0.406	-0.109	-3.70	0.002
ROA_c	0.001	0.790	-1.683	1.684	0.00	0.999
DE_c	-0.071***	0.016	-0.105	-0.036	-4.38	0.001
PBook_c	0.019**	0.007	0.005	0.033	2.88	0.011

Table 10: Robust OLS Cross-Sectional Regressions for BHARs over Horizon [0,120]

Lean Robust OLS Results for BHAR240 | R^2 = 0.501 | Adj. R^2 = 0.368 | N = 20

term	Estimate	Std.Error	CI95_L	CI95_U	t.value	p.value
(Intercept)	-0.415	0.312	-1.080	0.251	-1.33	0.204
log_Rel_Offer_c	-0.693***	0.205	-1.129	-0.257	-3.39	0.004
ROA_c	-0.751	1.750	-4.481	2.979	-0.43	0.674
DE_c	-0.184***	0.030	-0.248	-0.119	-6.04	0.000
PBook_c	0.049***	0.015	0.018	0.081	3.35	0.004

Table 11: Robust OLS Cross-Sectional Regressions for BHARs over Horizon [0,240]

In the long-horizon regressions (*BHAR* over [0,60], [0,120], and [0,240]), shown in Table 9, Table 10 and Table 11, the results reveal a markedly different set of relationships. Most notably, the price-to-book ratio (*PBook_c*) switches signs compared to the short-term regressions, now showing a positive and significant coefficient across all horizons (weakly at 10% in [0,60], then strongly significant at $1 - 5\%$ in [0,120] and [0,240]). This reversal supports the theoretical prediction that while high valuations invite skepticism in the short-term, they may reflect genuine growth prospects that underpin stronger performance in the post-offering years; investors may have initially punished high-valuation firms for perceived opportunism, but over time these firms were better positioned to recover and capitalize on post-pandemic reopening

trends, thus outperforming their peers. Conversely, the debt-to-equity ratio (DE_c), which had only marginal explanatory power in the short run, turns into a consistently negative and highly significant determinant of long-run abnormal returns (at the 5% or 1% levels), reinforcing the view that indebted travel firms struggled to translate equity injections into sustained performance improvements, with refinancing needs possibly signaling deeper structural weaknesses. The effect grows in magnitude over time, from -0.02 in [0,60] to -0.184 in [0,240], indicating that the drag of leverage compounds as recovery unfolds. The relative offer size ($log\_Rel\_Offer\_c$) also becomes significant in the long-run regressions, with increasingly negative coefficients ($-0.08, -0.26, -0.69$ across the horizons). This confirms that larger relative issuances were associated with more negative long-term abnormal returns, as the scale of dilution and the signaling of greater financing need weighed on investor perceptions beyond the immediate announcement; the long-run evidence indicates these issuances imposed lasting costs on shareholders, particularly in a sector where recovery was slow and uneven after the pandemic shock. Profitability (ROA_c), which mattered in the short-run, loses explanatory power in the long-run, with insignificant and unstable coefficients; this suggests that initial profitability did not translate into sustained abnormal performance, indicating that the temporary buffer offered by profitability at issuance did not necessarily translate into superior post-issue performance, as recovery trajectories of the sector depended more on external demand shocks and sectoral reopening dynamics than on pre-offer operating margins. The long-term regressions exhibit moderate R^2 values, with adjusted R^2 improving especially in the 120- and 240-day horizons (up to 0.37), indicating that firm characteristics explain a substantial fraction of long-run abnormal returns, more than in the short-term, where market-wide volatility and announcement shocks dominated.

Lastly, in order to assess the presence of potential multicollinearity among the explanatory variables, the variance inflation factors (VIFs) were computed together with their corresponding tolerance values. The results, presented in Table 12, indicate that all variables exhibit VIF values very close to unity, ranging from 1.03 to 1.31, and tolerance levels comfortably above 0.70, which are well within the conventional thresholds that typically flag concern (VIF values above 5 or 10, and tolerance below 0.20 or 0.10, depending on the benchmark adopted). The VIF test is a multivariate diagnostic, that instead of looking at regressors two by two, tests whether any given regressor can be explained as a linear

combination of all the others simultaneously, capturing hidden collinearity patterns that may not be obvious in pairwise correlations (estimated at the beginning of the cross-sectional analysis), but could still inflate standard errors and destabilize regression coefficients; VIF analysis operates as a post-estimation robustness check ensuring that the final specification is free of harmful multicollinearity. Reporting the VIF values alongside the regression results, therefore, reinforce the robustness of the analysis supporting the validity of the conclusions drawn from both short- and long-term specifications.

VIF Table

Variable	VIF	Tolerance	Flag
log_Rel_Offer_c	1.034	0.967	OK
ROA_c	1.139	0.878	OK
DE_c	1.308	0.765	OK
PBook_c	1.220	0.820	OK

Table 12: Variance Inflation Factors (VIFs) and Tolerance Values for Multicollinearity Diagnostics

3.6 Final Considerations and Limitations

Considered in conjunction, the evidence assembled in this study portrays a coherent crisis narrative in which U.S. travel firms resorted to seasoned equity offerings primarily to preserve liquidity rather than as market-timing bets, with reactions in the announcement period that are distinctly negative, yet not abnormally severe by historical standards; signs of underperformance were found economically sizable but, at times, statistically fragile, in particularly over the longer periods after the issuance in the buy-and-hold horizons, and the cross-sectional patterns emerged as dominated from profitability and valuation in the short run to dilution and leverage in the long run. Specifically, *CAAR*s around the filing date are uniformly below zero and become most visible in the immediate aftermath of the announcement, while *BHARs* drift downward relative to model-implied benchmarks without achieving conventional significance, despite the use of skewness-adjusted inference; as already

stated, this is a result consistent with the volatility and dispersion of firm outcomes during COVID and with the well-known noise amplification of compounding. These findings carry practical implications for issuers and investors operating in distressed environments: communication and timing that emphasize operating resilience can cushion announcement effects; balance-sheet repair via equity is not costless and the long-run drag of leverage and large relative offer sizes appears persistent. Lastly, elevated valuations should not be read uniformly as opportunism, since they may also proxy for firms better positioned to monetize the reopening phase. At the same time, several limitations bound the scope of inference and suggest avenues for refinement: firstly, the sample, while cleanly identified, is small (20 unique issuers) and sector-specific, which restricts external validity beyond the specific context investigated in this study; secondly, returns are modeled with a single-index market model estimated on $[-140, -60]$ trading days before the issuance, and although this is standard in event studies, alternative expected-return frameworks (e.g., Fama–French 3/5-factor models, industry-adjusted or matched-firm benchmarks, or calendar-time portfolio regressions) could alter long-horizon inference. It is also worth highlighting that the alignment to the filing day mitigates but cannot fully eliminate contamination from information leakage, concurrent corporate news, or macro announcements and that the benchmark choice (the S&P 500 Equal-Weighted Index), motivated by the size profile of issuers, could be replaced with alternative benchmarks to provide useful triangulation. Future research can strengthen and generalize these conclusions by enlarging the cross-section (other distressed sectors and geographies), incorporating richer controls and instruments for issuance design and issuer constraints, testing alternative abnormal-performance estimators, and implementing additional robustness checks. Within these boundaries, the study contributes by showing that, even in an extreme shock, the canonical SEO discount and announcement penalty reappear in magnitude comparable to non-crisis settings, that long-horizon performance is shaped less by pre-issue profitability and more by balance-sheet repair and dilution, and that investors ultimately differentiate between "expensive" issuers that are resilient and levered issuers for whom equity proceeds are merely a bridge, insights that refine the understanding of capital raising under distress and inform corporate financing choices in future crises.

Conclusions

The present thesis has sought to analyze the dynamics of equity follow-on offerings within one of the sectors most severely impacted by the COVID-19 pandemic, namely the travel and tourism industry, by investigating on a sample of U.S.-listed companies that resorted to equity issuance as a survival, recapitalization, and repositioning strategy in the aftermath of an unprecedented systemic shock. Building on a rich body of literature concerning the theory and empirical regularities of seasoned equity offerings, the study has aimed at exploring the short-term announcement effects, the long-term performance and the cross-sectional drivers that affected investor reactions during a period of exceptional financial and operational distress.

The empirical analysis has revealed that, in line with long-established evidence, equity follow-on offerings announcements were associated with statistically significant negative cumulative average abnormal returns ($CAARs$) in the short term, comparable in magnitude to non-crisis settings reported by classic U.S. SEO studies. This alignment suggests that, despite the sector's acute distress, markets did not levy an atypically large 'COVID penalty' on issuers; rather, the standard adverse selection and dilution issuance mechanics appears to have dominated the pricing of news, much as in pre-COVID samples (see Paragraph 1.3.1). A plausible mechanism is that liquidity-motivated issuance during the pandemic partly muted the scope for 'opportunistic-timing' in investors' pre-existing expectations; indeed, when issuance is transparently tied to balance-sheet repair, the signal of overvaluation is weaker, keeping the reaction close to historical benchmarks.

Market participants, while cautious, acknowledged the exceptional need for capital infusions in circumstances where alternative sources of financing were either unavailable or prohibitively costly, which helps explain why short-term abnormal returns were not more negative than those typically observed in non-crisis settings. Many companies undertook SEOs primarily to secure liquidity in order to sustain operations in the face of collapsing revenues, but a considerable number also explicitly communicated that the proceeds would be used to repay debt contracted through state-sponsored financial aid programs, which had been extended worldwide especially to firms in severely affected sectors such as travel and tourism one. In line with signaling theory (see Paragraph 1.2.3), this more transparent and straightforward rationale for raising additional equity was likely perceived more positively by investors, as it directly strengthened the firm's financial position and reduced indebtedness, thereby providing a clearer justification for the

offering compared to the more ambiguous motives often associated with funding vague or unspecified projects. Moreover, the execution under distress marked by unusually deep offer-price discounts and large same-day underpricing alongside the pre-issue run-ups found in this setting, effectively pre-compensated investors and narrowed the scope for any additional penalty associated with COVID, thereby keeping $CAARs$ magnitudes close to historical benchmarks. At the same time, elevated cross-sectional volatility and overlapping pandemic-related disclosures concentrated statistical significance in the tighter windows, whereas over the wider interval ($[-5, +5]$) the signal attenuates as extraneous news is absorbed; these features explain why the announcement effects in this study differ from, yet remain consistent with, the canonical SEO literature: the sign and approximate size of the reaction are preserved, but the precise $CAAR$ pattern is shaped by crisis-era deal terms and an unusually noisy information environment.

Turning to the long-run horizon, the buy-and-hold abnormal methodology results highlighted the persistence of underperformance in post-issue period, yet statistical significance is intermittent; this outcome is consistent with the classic pattern of SEO underperformance outlined in the literature (see Paragraph 1.3.2) but different for reasons intrinsic to a crisis issuance regime and to the empirical design. Indeed, the mechanism differs from non-COVID settings as issuers in this sample, largely raised equity to restore solvency and refinance crisis debt, rather than to exploit overvaluation, and the deep discounts and underpricing documented at issuance effectively compensated investors ex-ante supporting positive raw buy-and-hold returns, as prices gravitated toward prevailing market levels; nevertheless, when benchmarked and measured with expectation performance levels, because of the heavy crisis impacts, the abnormal performance (calculated using $BHAARs$) remained highly negative, worsening as the timeframe of valuation became longer, indicating underperformance despite positive absolute gains for subscribers. The benchmarking and horizon also influenced the results of the long-term analysis; indeed, relative to the 3–5 year windows that anchor much of the pre-COVID literature, the 60–240 day horizons examined here capture a period dominated by sector-level forces namely policy support, phased border reopening and demand normalization, that compress cross-sectional dispersion. Yet, despite the compressing effect of these common shocks, the sample exhibits pronounced benchmark-adjusted underperformance over 60–240 trading days; while raw buy-and-hold returns exhibit positive values, benchmark returns rose more, and issuer-specific frictions (most notably leverage and the scale of equity raised, as

outlined by the cross-sectional analysis), exerted a persistent drag via debt-service burdens and dilution. In other words, the 'tide' lifted markets broadly, but it lifted peers and the benchmark more than the equity-issuing firms that were still repairing balance sheets; where leverage and relative offer size were greatest, this gap widened, yielding negative *BHARs* despite positive absolute gains. Unfortunately, sampling and inference frictions weighted against strong statistical results: a small, sector-focused sample (N=20) in a high-volatility environment produces wide standard errors even under skewness-adjusted tests, so that economically meaningful negatives often fail conventional thresholds.

The cross-sectional analysis offered further insights by explaining why, in this crisis context, some firm specific characteristics were priced more heavily than others and why their influence rotated across horizons shaping market perceptions of equity issuance.

Around the announcement, investors appeared to condition reactions on valuation and operating quality: higher price-to-book ratios were associated with more negative *CARs* because elevated multiples, in an environment of acute uncertainty, intensified adverse-selection concerns and raised the specter of "timing," whereas stronger profitability (identified by ROA) mitigated the penalty by credibly signaling execution capacity and disciplined uses of proceeds; this interpretation is consistent with signaling and pecking-order logic (see Paragraphs 1.2.2-1.2.3), in which quality firms can better reassure the market when tapping equity under stress. By contrast, scale and capital structure, measured by relative offer size and leverage, were not the primary drivers at the instant of news; investors accepted that large, liquidity-motivated raises were necessary to stabilize balance sheets because dilution was anticipated as a survival tool, rather than a discretionary choice. Leverage (D/E), displayed only a weak association with announcement-window CARs, with highly levered issuers even experiencing a faint relief only in the wider window ($[-5, +5]$), reflecting the immediate de-risking of refinancing needs, consistent with a two-stage processing where investors first priced informational risk (valuation, profitability) and only subsequently reassessed refinancing risk. Over the subsequent months, however, investors' focus shifted decisively toward dilution intensity and debt overhang; indeed, as recovery unfolded, larger relative offers and higher leverage reliably depressed *BHARs*, as larger issues embedded more persistent dilution and need-for-cash signals and leverage turned consistent with debt-overhang dragging, weighting negatively on investor perceptions beyond the immediate announcement. Conversely, ROA's initial protective effect dissipated, once common reopening forces governed cash-flow trajectories rather than pre-issue

margins, suggesting that initial operating strength became less decisive for post-issue abnormal returns than the firm's capital-structure path and the scale of the recapitalization. Notably, valuation flipped sign between horizons; firms with higher price-to-book ratios, penalized at the announcement for perceived timing risk, subsequently outperformed on a benchmark-adjusted basis, consistent with those multiples capturing growth options and recovery positioning that were realized during reopening. Relative to non-COVID studies, these patterns differ in two economically coherent ways: first, the short-run insensitivity to relative offer size (and the weakly benign leverage effect) contrasts with "normal-times" evidence in which large, dilutive raises and indebtedness are often punished on impact; here, transparent, liquidity-driven motives and atypically deep pricing concessions compensated in advance investors and reframed issuance as balance-sheet repair rather than opportunism. Second, the long-run prominence of leverage and relative offer size is stronger, not weaker, than usual because crisis-era debt stacks and outsized equity injections left a persistent footprint that the market capitalized gradually as refinancing cycles, interest burdens, and supply overhang played out. Methodologically, these results are not artifacts of model specification, as regressors were mean-centered, multicollinearity was deliberately curtailed by excluding near-collinear size measures, and inference used robust errors; although overall models fit is naturally modest in a small, volatile, single-sector sample, the signs and economic magnitudes of the coefficients remain stable across windows.

To summarize, the cross-section reveals a horizon-dependent pivot: valuation and quality in the short run, dilution and leverage in the long run; while these patterns corroborate existing theoretical predictions from pecking order and signaling theories, they also serve to explain why the crisis context generated departures from canonical SEO regularities documented in non-COVID periods and why some firm-characteristic weighed differently across horizons in this setting, shedding a light on the nuances that arise under distress, where the need for capital outweighs opportunistic considerations.

Overall, the findings contribute to the literature by demonstrating that the core empirical regularities of seasoned equity offerings short-run negative abnormal returns and long-run underperformance remain largely intact even under systemic crisis conditions, although their magnitude and interpretation are partially reshaped by the extraordinary circumstances of the pandemic. More generally, the research highlights the ambivalent nature of equity issuance in distress: on the one hand, it constitutes an essential mechanism of survival and balance sheet

repair device for issuers; on the other hand, it is still interpreted by markets as a costly signal, one that dilutes control, triggers overvaluation fears and often foreshadows disappointing long-term performance.

Naturally, this thesis is not without limitations; firstly, the sample, as previously noted, although carefully selected to ensure consistency and comparability, is relatively limited, reflecting the concentration of offerings in a particular sector and geographical market. Additionally, the reliance on the standard event study and buy-and-hold analysis framework, while solid and widely employed, may prove insufficient to fully capture the nuances of investor expectations, policy interventions, and industry-specific shocks that marked the pandemic era. Future research could expand the analysis to cross-country samples, incorporate alternative performance measures, or investigate the role of institutional investors and government interventions in influencing the issuance of equity during crisis conditions.

Within these limitations, the study offers interesting theoretical and empirical implications; for academics, it offers a valuable empirical ground to test capital structure theories under systemic distress, assessing both their robustness and their limitations. For practitioners and policymakers, the results illustrate the delicate trade-off between the necessity of capital raising and the negative perceptions it engenders, suggesting that clear communication, credible use-of-proceeds statements, and careful timing remain vital for mitigating market skepticism. Finally, for corporate managers, the analysis highlights that the issue of new shares may be unavoidable in times of crisis, but its long-term consequences need to be actively addressed through sound operational recovery and strategic repositioning, if the objective is not merely survival but renewed value creation.

In conclusion, the COVID-19 pandemic has reaffirmed the enduring paradox of equity follow-on offerings; they are at once a vital instrument of corporate resilience and a persistent source of market concern. By situating this paradox within the travel and tourism sector during one of the most turbulent episodes in modern economic history, this thesis contributes to a deeper understanding of the interaction between financial markets, corporate financing decisions, and systemic crises, thereby offering insights that remain relevant well beyond the specific context of the pandemic.

Bibliography

[1]   Alotaibi, E., & Khan, A. (2022). Impact of COVID-19 on the hospitality industry and responding to future pandemics through technological innovation. *Procedia Computer Science, 204,* 844–853.

[2]   Alti, A., & Sulaeman, J. (2012). When do high stock returns trigger equity issues? *Journal of Financial Economics, 103*(1), 61–87.

[3]   Armitage, S. (1998*). Seasoned equity offers and rights issues: A review of the evidence. European Journal of Finance, 4*(1), 29–59.

[4]   Ashraf, S., Sarhan, A. A., de Almeida, A. M. M., & Teles, S. (2025). Capital structure of hospitality and tourism-related firms: Unveiling the impact of COVID-19 pandemic on European firms with different size and ownership structure. *International Journal of Hospitality Management, 126,* 104067.

[5]   Asquith, P., & Mullins, D. W. (1986). Equity issues and offering dilution. *Journal of Financial Economics, 15*(1–2), 61–89.

[6]   Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics, 9*(1), 3–18

[7]   Barber, B. M., & Lyon, J. D. (1997). Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics*, 43(3), 341–372.

[8]   Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences of the United States of America*, *117(*30), 17656–17666.

[9]   Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis. *The Journal of Finance, 32*(2), 663–682.

[10]   Beckles, J., & Jackman, M. (2024). Financial worry and government responses to the COVID-19 pandemic in 88 countries: Did public confidence in national governments matter? *Journal of Behavioral and Experimental Finance, 43,* 100940.

[11]   Bortolotti, B., Megginson, W. L., & Smart, S. B. (2008). The rise of accelerated seasoned equity underwritings. *Journal of Applied Corporate Finance, 20*(3), 35–57.

[12]   Boehmer, E., Masumeci, J., & Poulsen, A. B. (1991). Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics*, 30(2), 253–272.

[13]   Burkart, M., & Zhong, H. (2023). Equity issuance methods and dilution. *The Review of Corporate Finance Studies, 12*(1), 78–130.

[14]   Clarke, J., Dunbar, C., & Kahle, K. (2004). The long-run performance of secondary equity issues: A test of the windows of opportunity hypothesis. *The Journal of Business, 77*(3), 575–603.

[15]   Corwin, S. A. (2003). The determinants of underpricing for seasoned equity offers. *The Journal of Finance, 58*(5), 2249–2279.

[16]   Council of the European Union. (2020). *Re-open EU – a website making travelling easier.* Council of the European Union. https://ec.europa.eu/newsroom/councileu/items/680510/default

[17]   De Bondt, W. F. M., & Thaler, R. (1985). Does the stock market overreact? *The Journal of Finance, 40*(3), 793–805.

[18] Derco, J. (2022). The impacts of the COVID-19 pandemic on the tour operator market—The case of Slovakia. *Journal of Risk and Financial Management, 15*(10), 446.

[19] Eckbo, B. E., & Masulis, R. W. (1992). Adverse selection and the rights offer paradox. *Journal of Financial Economics, 32*(3), 293–332.

[20] Altinkilic, O., & Hansen, R. S. (2003). Discounting and underpricing in seasoned equity offers. *Journal of Financial Economics, 69*(2), 285–324.

[21] European Commission. (2022). *EU Digital COVID Certificate.* European Commission. https://commission.europa.eu/strategy-and-policy/coronavirus-response/safe-covid-19-vaccines-europeans/eu-digital-covid-certificate_en

[22] European Commission. (2023). *Recovery Plan for Europe.* European Commission. https://commission.europa.eu/strategy-and-policy/recovery-plan-europe_en

[23] Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance, 47*(2), 427–465.

[24] Funashima, Y., & Hiraga, K. (2023). Did the Japanese government's travel subsidy increase the number of hotel guests and infection during the COVID-19 pandemic? *Economic Analysis and Policy, 79,* 1005–1025.

[25] Gao, X., & Ritter, J. R. (2010). The Marketing of Seasoned Equity Offerings. *Journal of Financial Economics, 97*(1), 33–52.

[26] Gursoy, D., & Chi, C. G. (2020**).** Effects of COVID-19 pandemic on hospitality industry: Review of the current situations and a research agenda. *Journal of Hospitality Marketing & Management, 29*(5), 527–529.

[27] Hansen, R. S., & Pinkerton, J. M. (1982). The demise of the rights issue. *Review of Financial Studies, 1*(3), 289–309.

[28] HM Revenue & Customs. (2020). *VAT: reduced rate for hospitality, holiday accommodation and attractions.* GOV.UK. https://www.gov.uk/guidance/vat-reduced-rate-for-hospitality-holiday-accommodation-and-attractions

[29] Hollingsworth, J. (2020). *A 'travel bubble' between New Zealand and Australia could be a model for the future.* CNN. https://edition.cnn.com/travel/article/new-zealand-australia-travel-bubble-intl-hnk

[30] Hull, R. M., Kwak, S., & Walker, R. L. (2009). Signaling and proceeds usage for seasoned equity offerings. *Investment Management and Financial Innovations, 6*(2), 40–51.

[31] International Air Transport Association. (2020). *IATA Annual Review 2020.* https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/iata-annual-review-2020.pdf

[32] International Air Transport Association. (2021). *World air transport statistics 2021.* IATA.

[33] International Labour Organization. (2021). ILO monitor: COVID-19 and the world of work. Seventh edition – Updated estimates and analysis. ILO.

[34] International Monetary Fund. (2021). *Questions and answers: The IMF's response to COVID-19.* https://www.imf.org/en/About/FAQ/imf-response-to-covid-19

[35] Jegadeesh, N. (2000). Long-term performance of seasoned equity offerings: Benchmark errors and biases in expectations. *Financial Management, 29*(3), 5–30.

[36] Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance, 48*(1), 65–91.

[37] Kothari, S. P., & Warner, J. B. (2007). Econometrics of event studies. In B. E. Eckbo (Ed.), *Handbook of corporate finance: Empirical corporate finance* (Vol. 1, pp. 3–36). Elsevier.

[38] Lakonishok, J., Shleifer, A., & Vishny, R. W. (1994). Contrarian investment, extrapolation, and risk. *The Journal of Finance, 49*(5), 1541–1578.

[39] Lee, G., & Masulis, R. W. (2009). Seasoned equity offerings: Quality of accounting information and expected flotation costs. *Journal of Financial Economics, 92*(3), 443–469.

[40] Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The Journal of Finance, 32*(2), 371–387.

[41] Levis, M. (1995). Seasoned equity offerings and the short- and long-run performance of initial public offerings in the UK. *European Financial Management, 1*(2), 125–146.

[42] LODGING Staff. (2020). *UPDATED: How Hotel Brands Are Responding to COVID-19*. Lodging Magazine. https://lodgingmagazine.com/how-hotel-brands-are-responding-to-covid-19/

[43] Loughran, T., & Ritter, J. R. (1995). The new issues puzzle. *The Journal of Finance, 50*(1), 23–51.

[44] Lyon, J. D., Barber, B. M., & Tsai, C. L. (1999). Improved methods for tests of long-run abnormal stock returns. *The Journal of Finance*, 54(1), 165–201.

[45] Macchiarelli, C. (2021). *How is COVID-19 affecting international travel and tourism?* Economics Observatory. https://www.economicsobservatory.com/how-is-covid-19-affecting-international-travel-and-tourism

[46] Marsh, P. (1979). Equity rights issues and the efficiency of the UK stock market. *The Journal of Finance, 34*(3), 839–862.

[47] Miglo, A. (2011). The pecking order, trade-off, signaling, and market-timing theories of capital structure: A review. In H. K. Baker & G. S. Martin (Eds.), *Capital structure and corporate financing decisions: Theory, evidence, and practice* (pp. 171–191). Wiley.

[48] Mola, S., & Loughran, T. (2004). Discounting and clustering in seasoned equity offering prices. *Journal of Financial and Quantitative Analysis, 39*(1), 1–23.

[49] Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*(2), 147–175.

[50] Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187–221.

[51] Reuters. (2022). *TUI announces share sale to pay back German state bailout*. https://www.reuters.com/business/tui-announces-share-sale-pay-back-german-state-bailout-2022-05-17/

[52] Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *The Journal of Portfolio Management, 11*(3), 9–16.

[53] Rushe, D. (2020). *US government agrees on $25 bn bailout for airlines as pandemic halts travel*. The Guardian.

https://www.theguardian.com/business/2020/apr/14/us-government-coronavirus-bailout-airlines-industry

[54] Smith, C. W. (1986). Investment banking and the capital acquisition process. *Journal of Financial Economics, 15*(1–2), 3–29.

[55] U.S. Government Accountability Office. (2021). *COVID-19 Pandemic: Observations on the Ongoing Recovery of the Aviation Industry* (Report No. GAO-22-104429). Washington, DC: U.S. GAO.

[56] UNWTO. (2019). UNWTO World Tourism Barometer, *17*(4). World Tourism Organization.

[57] UNWTO. (2021). UNWTO World Tourism Barometer, *19*(5). World Tourism Organization.

[58] Vijh, A. M. (1999). Long-run performance of equity carve-outs. *Journal of Financial Economics, 51*(2), 273–308.

[59] Walker, M. D., & Wu, Q. (2019). Equity issues when in distress. *European Financial Management, 25*(3), 489–519.

[60] World Tourism Organization (UNWTO). (2020). *Tourism and COVID-19*. UNWTO. https://www.europarl.europa.eu/cmsdata/211619/OJ4-UNWTO-presentation_en.pdf

[61] World Tourism Organization (UNWTO). (2020). *UNWTO releases a COVID-19 technical assistance package for tourism recovery*. UNWTO. https://www.untourism.int/news/unwto-releases-a-covid-19-technical-assistance-package-for-tourism-recovery

[62] World Tourism Organization. (2025). *International tourism recovers pre-pandemic levels in 2024*. UNWTO.

https://www.untourism.int/news/international-tourism-recovers-pre-pandemic-levels-in-2024

[63] World Travel & Tourism Council. (2019). *Global economic impact & trends 2019.* WTTC.

[64] World Travel & Tourism Council. (2020). *Global economic impact & trends 2020.* WTTC.

[65] World Travel & Tourism Council. (2023). *Global Travel & Tourism Catapults Into 2023*. WTTC.
https://wttc.org/news/global-travel-and-tourism-catapults-into-2023-says-wttc

[66] World Travel & Tourism Council. (2024). *Travel & Tourism set to break all records in 2024, reveals WTTC*. WTTC.
https://wttc.org/news/travel-and-tourism-set-to-break-all-records-in-2024-reveals-wttc