Major in International Finance

MASTER RESEARCH PAPER

Academic Year 2024-2025

The Impact of Non-Pre-Emptive Capital Increases with Discounted Placements on Share Prices

---

Alberto Lombardo[1]

Daniele Masiello[2]

Under the supervision of Prof. Quiry

President of the Jury: Prof. Naillon

☒ ***PUBLIC REPORT*** ☐ ***CONFIDENTIAL REPORT***

Date of Submission: 03/09/2025

Keywords: Accelerated Bookbuilding, Discount Placement, Abnormal Returns, Event Study

Acknowledgement: We are sincerely grateful to Prof. Pascal Quiry for the support, guidance and availability offered in the fulfilment of this research paper.

[1] Alberto Lombardo: 308L, 1 Rue de la Libération, 78350 Jouy-en-Josas, France | alberto.lombardo@hec.edu

[2] Daniele Masiello: 140A, 1 Rue de la Libération, 78350 Jouy-en-Josas, France | daniele.masiello@hec.edu

Abstract

This research paper[3] investigates the impact of non-pre-emptive capital increases executed through accelerated bookbuildings (ABBs) on short-term share price performance. Using the event study methodology on a proprietary dataset of 427 European transactions completed between 2022 and 2024, we compute cumulative average abnormal returns (CAARs) around issue announcements to capture market reactions. In addition, cross-sectional regressions are employed to examine which deal characteristics drive variations in performance, focusing on placement size, issuance discounts, transaction costs, and firm-level variables such as capital structure and valuation ratios.

Our findings confirm that ABB announcements are associated with negative abnormal returns concentrated on the announcement date, with no evidence of subsequent reversal. Cross-sectional evidence shows that larger placements are received more favourably by investors, while higher issuance costs are consistently linked to weaker outcomes. Although discounts appear significant in baseline models, their explanatory power vanishes once deal size and costs are accounted for. Capital structure and valuation ratios, in turn, do not emerge as significant drivers of performance. This research contributes to the literature on seasoned equity offerings by providing new evidence on the short-term market impact of accelerated placements in European equity markets.

[3] In the preparation of this research paper, artificial intelligence (AI) tools were used. Specifically, AI assistance was employed for: (1) refining language and improving sentence clarity; (2) assisting with the organization and structure of textual components; and (3) generating and debugging portions of the analytical Python code used in this study.

Table of Contents

List of Figures

List of Tables

Introduction

A seasoned equity offering (SEO), also known as a follow-on offering, is the issuance of additional shares by a company that is already publicly traded. Unlike an initial public offering (IPO), which involves a company offering its shares to the public for the first time, an SEO allows a company to raise additional capital from the equity markets. An IPO and an SEO can both consist of Primary Offerings, where the shares are sold by the company, and Secondary Offerings, where the shares are sold by existing shareholders.

There are several methodologies of conducting SEOs, each tailored to the needs of the issuing company and the investors' preferences. A common classification of the more commonly used alternatives in the public offerings of new equity by corporate issuers is the following:

1. *Direct Offering*

   A direct offering, sometimes referred to as direct placement, does not involve investment bankers and is handled by the company itself. As a result, the issuer determines the terms of the offering (price, maximum number of stocks per investor, settlement date, and offering period).

   There are several subcategories:

   a. To the General Public: Shares are sold directly to investors, such as retail investors or institutional buyers, often through the designated portals (DPOs, Private Placement, ATMs, Shelf Registration[4]).

   b. Rights to Stockholders: Existing shareholders are given the opportunity to purchase additional shares, often at a discount, in proportion to their existing ownership (pre-emptive rights).

2. *Offerings With Involvement of Investment Bankers*

   The process is intermediated by investment banks, which assist in pricing, marketing, and ensuring the success of the offering.

[4] Direct Public Offerings: the company sells its securities directly to the public without intermediaries like investment banks, reducing costs but requiring the issuer to handle all regulatory and marketing efforts. Private Placement: sale of securities to a select group of accredited or institutional investors, avoiding public registration and associated costs. At-The-Market-Offerings: a process where companies issue and sell shares incrementally into the open market at prevailing market prices, offering flexibility in capital raising. Shelf Registration: a regulatory mechanism that allows a company to register securities and issue them over time, enabling flexibility in responding to market conditions.

These offerings can be categorized into those targeting the general public and those specifically directed at stockholders.

a. To the General Public: when shares are offered to the general public (e.g. Block Trades, Accelerated Bookbuilding, or Shelf Registration[5]), the underwriting can be further divided into negotiated offerings and competitive offerings.

   i. Negotiated Offerings involve close collaboration between the issuer and the selected investment bank. This category can be further divided in:

      - Best Efforts arrangement: the investment banker agrees to sell as many shares as possible but does not guarantee the sale of the entire issue. The issuer bears the risk of unsold shares.

      - Firm Commitment agreement: the banker purchases all the shares from the company at a pre-agreed price, taking on the financial risk. The underwriter then places the shares to the public (e.g. Accelerated Bookbuilding).

   ii. Competitive Offerings encourage investment banks to compete by bidding to underwrite the offering (Firm Commitment, e.g. Bought Deal[6]).

b. Rights to Stockholders: these can also be divided into negotiated rights offerings and competitive rights offerings.

   i. Negotiated Rights Offerings are structured through an agreement with a single investment bank. This category can be further divided in:

      - Best Efforts arrangement: the banker markets the rights to ensure maximum shareholder participation but does not guarantee the sale of all shares.

      - Standby agreement: the banker agrees to purchase any unsold shares after the rights offering concludes, ensuring the issuer receives the intended capital.

[5] Block Trades: A large sale of shares executed privately or off-market, typically between an institutional investor and an investment bank, to minimize market impact. Accelerated Bookbuild: A fast-track process for selling shares to institutional investors, often completed within 1–2 days, used when quick capital raising is required. Shelf Registration: a regulatory mechanism that allows a company to register securities and issue them over time, enabling flexibility in responding to market conditions.

[6] In a bought deal, the issuing firm announces the amount of stock it wants to sell, and investment banks compete by submitting bids. The bank offering the highest net price secures the deal. The winning bank then resells the shares, primarily to institutional investors, often within 24 hours.

ii. Competitive Rights Offerings involve inviting multiple investment banks to bid for the right to underwrite the offering (Standby agreement).

For the purpose of this dissertation, we will focus on capital increases without pre-emptive rights, specifically on Accelerated Bookbuilding (ABB), one of the three forms of accelerated underwriting, alongside block trades and bought deals.

Literature Review

This chapter highlights the key theoretical frameworks underlying the share-price reaction observed when firms announce a seasoned equity offering. Drawing on four decades of research, we organise the discussion around three complementary perspectives. First, signalling models show how information asymmetries between managers and outside investors create adverse-selection costs that depress prices. Second, market-efficiency and price-pressure theories focus on how the mechanics of issuing new shares, combined with short-run trading frictions, can trigger temporary but sharp price movements. Third, downward-sloping demand-curve theories argue that when investors have heterogeneous preferences and limited arbitrage opportunities, expanding the share float can permanently lower a stock's equilibrium price.

Signaling and Asymmetric Information

The classic signaling theory of equity issuance (Myers and Majluf, 1984) states that managers have better information than outside investors, and if they choose to issue new equity, rational investors infer that management views the stock as overpriced. This adverse selection logic was established in a series of papers published in the mid-1980s and predicts a negative stock price reaction at the announcement of an equity offering (Miller and Rock, 1985; Lucas and McDonald, 1990). Asquith and Mullins (1985) found that industrial issuers experienced a statistically significant average announcement day excess return of -2.7%. Although this effect may appear small, the aggregate reduction in equity value as a percentage of the secondary issue proceeds averages 78%. Regression results indicate that the price reduction is significantly related to both the cumulative abnormal return during the eleven months preceding the issuance and to the size of the deal.

This is often cited as evidence of investors' skeptical reaction to news of impending dilution and potential overvaluation. For ABBs specifically, the signaling theory still applies, perhaps even more if issuers exploit their speed to place shares before negative information is fully reflected in prices. On the other hand, one could argue that a company able to raise equity overnight from sophisticated investors might be signaling strength (i.e. investor confidence).

Thus, the net signaling effect in an ABB is an empirical question, but the prevailing view is that any SEO announcement tends to be interpreted cautiously by the market[7].

Market Efficiency and Price Pressure

Under semi-strong market efficiency, the stock price should quickly reflect the dilutive impact of a new share issue as well as any information it conveys. With a fully marketed offering, there is typically a gap between announcement and the final pricing/trade, during which the market can react, often leading to speculation and short-selling. An accelerated bookbuild compresses this timeline drastically, which changes the dynamics of price adjustment. One key finding is that ABBs avoid much of the "price pressure" that longer offerings experience. For instance, when a traditional SEO is announced, arbitrageurs and hedge funds might short the stock, anticipating the issuance will push the price down; this can lead to a pre-issue decline in the share price beyond the pure dilution effect.

A recent study by Gustafson (2018) found that in the U.S., non-overnight SEOs had an average -2.5% stock price drop in the days between announcement and issuance, which rebounded after the issue, suggesting an overshoot due to temporary selling pressure. This reversal is increasing in SEO offer size and in the magnitude of the price decline. Conversely, accelerated offerings show less positive returns that are unrelated to SEO offer size or pre-issue performance. This implies that ABBs achieve a more efficient outcome: the market does not have time to overshoot, and the stock jumps to its new, discount-adjusted level once the deal prints, with limited pressure. Any mispricing tends to be small and short-lived because arbitrageurs cannot front-run an overnight deal as easily.

Downward Sloping Demand Curve

The theoretical literature in finance states that the demand curve for a firm's shares is essentially horizontal. The prices of securities are determined only by the risk profile and expected return of their associated cash flows. The shape of the demand curve is influenced by the fact that close substitutes for a firm's shares are either directly available in the capital markets or they can be constructed through combinations of existing securities (Asquith and Mullins, 1985). Thus, when close substitutes exist, capital markets are efficient, and investment policies remain fixed, the price of a firm's shares should, in theory, remain unaffected by changes in the number of shares available. However, financial executives, investment bankers, and regulators often believe that issuing new equity leads to a decline in stock price. This view,

[7] However, studies conducted with data outside the US have registered less negative and sometimes statistically insignificant announcement returns. See, Gajewski & Ginglinger (2002); Dissanaike, Faasse & Jayasekera (2014); Veld, Verwijmeren & Zabolotnyuk (2018); and Bortolotti & Megginson (2008).

known as the price-pressure hypothesis (Scholes, 1972), lays the foundation of a downward sloping demand curve for shares.

The key implication is that each firm's shares are unique, and no close substitute exists. The downward-sloping demand curve can arise from multiple factors other than asymmetric information (Benveniste and Spindt, 1989; Myers and Majluf, 1984) and lack of close substitutes (Greenwood, 2008; Asquith and Mullins, 1985). Among these factors, we can include divergence in investor opinions (Hong and Stein, 2007; Miller, 1977) and limited number of investors who are paying attention to the stock (Duffie, 2010; Merton, 1987). Others have theorized that with tax advantages from debt financing; a new equity issue may reduce stock price because higher debt ratios are binding constraint for the firm and thus signal positive management expectations concerning future cash flows (DeAngelo and Masulis, 1980; Masulis, 1983). In Miller and Rock's (1982) framework, equity issues are equivalent to negative dividends and thus signal lower firm's future earnings. Gao and Ritter (2010) analyse the demand and supply curves for the issuing firm's stock. With a downward-sloping demand curve, the increase in stock supply following a secondary issuance leads to a decline in stock price. In their study, offer marketing flattens the demand curve and helps to achieve a higher price after the offer.

Accelerated Bookbuilding

Historical Backgrounds

Accelerated underwriting first came to Europe in the late 1980s and gradually gained traction worldwide afterward[8]. In the UK, the approach gained momentum after the London Stock Exchange relaxed its policies in the mid-1980s to facilitate placings over traditional rights issues. A case in point is Guinness PLC's August 1986 block trade, in which it sold 18.8 million BP LPC shares at a modest 3% discount, an event widely seen as a success and a catalyst for wider adoption of accelerated deals across Europe. The major milestone came in February 1991, when the Reichmann family sold their 9.5% stake in Allied-Lyons PLC through a $900 million secondary offering. Initially labelled as a bought deal, it was later recognized as the first accelerated bookbuilding offering, though the first usage of that term in any news article covered by Lexis/Nexis occurred only in July 1997 (Bortolotti, Megginson, and Smart, 2007).

[8] Plueneke and Templeman (1986) and Shearlock (1994) discuss one of the earliest and most dramatic international transactions, a 1986 bought deal involving two-thirds of Libya's Fiat stake, worth $2.1 billion. Deutsche Bank took the lead but mismanaged the deal, resulting in nearly $100 million in losses for syndicate members.

The Process

Accelerated bookbuilding offers are conducted very quickly (often in one or two days) with minimal marketing, allowing firms to raise equity on short notice. In an ABB, investment banks do not initially commit to purchasing the entire issuance from the company. Instead, banks competing for the mandate submit proposals that vary in key terms, including the minimum guaranteed price (backstop), the underwriting fee, and their ability to place the shares effectively. Once appointed, the lead bank typically forms a small syndicate and line up buyers (primarily institutional clients) on an expedited basis, often after market close. Similar to bought deals, these offerings are executed without a retail tranche or a formal roadshow. The underwriter solicits indications of interest from select investors and then prices and allocates the shares within hours. During this brief underwriting window, the issuing firm retains part of the market risk, unlike in traditional bought deals or block trades. However, this structure allows for larger placements, as underwriters are not required to fully absorb the price risk upfront.

Rise of ABBs in Global Equity Markets

ABBs have grown to become a dominant form of seasoned equity issuance. In the early 1990s, accelerated offerings (ABBs and Bought Deals) were rare (only a single-digit percentage of SEOs), but by the mid-2000s they rose to over half of all U.S. SEOs and about two-thirds of European SEOs (Bortolotti, Megginson, and Smart, 2007). The authors observe that accelerated transactions have gained popularity due to their speed and lower execution costs compared to fully marketed offerings. In the European market, they report an average underpricing of 2.97% for accelerated deals, significantly lower than the 7.32% observed for non-accelerated transactions. In their classification, accelerated offerings include accelerated bookbuilding deals, bought deals, and block trades. In the subsequent decade, ABBs became the “new normal” in many markets. Between 2009 and 2014, roughly 63% of U.S. seasoned equity offerings were announced and issued via ABB (Gustafson, 2018).

The ABB process is accessible only to qualified investors, as it generally does not involve public retail marketing. Those buyers are usually large institutional investors such as hedge funds, pension funds, mutual funds, and other asset managers. In an ideal scenario, the book is covered quickly by long-term focused investors. In practice, hedge funds are often involved due to their ability to respond rapidly and provide order volume, while pension and mutual funds also participate to take sizable allocations for long-term holds. A recent example is DSV A/S’s $5.5 billion share sale, which saw over $30 billion in orders, surpassing the number of shares on offer by more than five times (Bloomberg, 2024). According to sources familiar with the matter, long-only investors, including asset managers and pension funds, secured more than

90% of the allocated shares, with the remaining portion acquired by hedge funds. This kind of split is common: long-only investors provide a stable backbone of demand, while hedge funds and other opportunistic investors fill out the book and sometimes seek to flip the shares for a quick gain.

To compensate for the rapid execution and any uncertainty, ABBs are generally priced at a discount to the last closing market price. The discount incentivizes investors to buy a large block on short notice. Empirically, these discounts tend to be in the single digits. Thus, while discounts above 5% can occur, they often come with negative signaling implications.

SEO Underpricing

Several studies highlight the role of information asymmetry and market frictions in explaining SEO underpricing. Corwin (2003) finds that underpricing in seasoned equity offerings is positively related to uncertainty about firm value. In such contexts, new investors require compensation for the informational disadvantage they face, purchasing shares at a discount relative to the prevailing market price (Parsons and Raviv, 1985). Rock (1986) proposes a model in which underpricing is necessary to attract uninformed investors and ensure their participation in the offering.

Corwin (2003) also identifies price pressure as a key driver of SEO underpricing. This is consistent with the theory of a downward-sloping demand curve: when the supply of shares increases due to a new issue, the market price is expected to decline unless the demand curve is perfectly elastic. Under this framework, underpricing compensates investors for absorbing the additional supply, especially when the SEO represents a substantial increase in float.

Additional evidence comes from Altinkilic and Hansen (2003), who breaks down SEO discounts into expected and unexpected components and find that discounting correlates positively with value uncertainty. Corwin (2003). Kim and Shin (2004) reinforce these findings by showing a positive relationship between ex-ante uncertainty and SEO discounts.

Loderer et al. (1991) suggest that the legal liability hypothesis, first introduced in the IPO literature by Ibbotson (1975) and Tinic (1988), can similarly account for underpricing in seasoned equity offerings. According to this theory, providing shares at a discount protects underwriters from possible legal action and damage to their reputation. A lower offer price lowers the chance that the stock will lose value right after it is issued, which lowers the risk of investor resentment and ensuing legal action.

Bowen et al. (2008) highlight the role of analyst coverage in mitigating underpricing in seasoned equity offerings, arguing that greater coverage can lessen investor information asymmetries. Analyst attention is expected to increase transparency and, all else being equal, reduce the cost of issuing equity by helping market participants better understand a company's fundamentals.

Findings from the IPO literature, however, paint a more complex picture. The degree of underpricing and the amount of analyst coverage that follows the offering are positively correlated, according to studies by Cliff and Denis (2004), Aggarwal et al. (2002), Chen and Ritter (2000), and Rajan and Servaes (1997). One reason is that underwriters may purposefully undervalue initial public offerings in order to give preferred clients discounted shares, especially if the underwriter also conducts post-offering research. According to James and Karceski (2006), analysts connected to the lead underwriter may provide positive research, or "booster shots," to help companies that perform poorly after the market.

Long-run Underperformance Following the SEO

Several studies have shown that companies that engage in SEOs typically perform worse over time than benchmark indices. From the perspective of efficient market theory, such persistent underperformance is puzzling, as any relevant information about the offering should be rapidly incorporated into the firm's stock price.

According to Eckbo et al. (2000), one explanation for the drop in post-SEO returns could be that the issuing firm's systematic risk has decreased in comparison to its non-issuing peers. Businesses can reduce their financial leverage and, consequently, their exposure to unforeseen inflation and default risk by increasing their equity. Investors consequently demand a lower risk premium, which is reflected in a lower required rate of return.

Numerous studies attribute the long-run underperformance of SEO firms to behavioural explanations rather than to traditional asset pricing frameworks like the Capital Asset Pricing Model or the Fama-French three-factor model. Market participants may have cognitive limitations and use simplified heuristics when processing information, according to behavioural models, which cast doubt on the notion that investors are completely rational. For instance, Barberis et al. (1998) suggest a model where investors behave according to one of two different theories regarding earnings behaviour. Some investors believe that earnings will mean-revert, meaning that they will eventually return to a long-term average after experiencing brief fluctuations. On the other hand, some people think that earnings follow steady upward or downward trends. Importantly, after adopting a particular belief system, investors usually take a long time to change their minds. This cognitive rigidity contributes to mispricing around SEO announcements. Investors in the trend-following regime may underreact to the negative implications of an equity issuance, continuing to expect improving performance despite the dilution or signal of overvaluation. This could result in gradual price adjustments and long-term underperformance since the market price might not fully reflect the negative news at the time of the offering.

Another explanation for long-run underperformance lies in investor overconfidence. Daniel et al. (1998) develop a model in which investors place excessive weight on their own private information while discounting publicly available data. This behavioural bias leads them to maintain overly optimistic valuations, particularly when new signals reinforce their existing beliefs. As a result, mispricing persists in the short run. Once public information accumulates and becomes harder to ignore, the market prices gradually adjust, bringing valuations back in line with fundamentals.

According to several studies (e.g., Loughran and Ritter, 1995; Choe et al., 1993; Hickman, 1953), SEO companies' long-term poor performance can be linked to their exploitation of short-term windows of opportunity, specifically issuing new shares when their stock is overpriced. Similar to this, Lucas and McDonald (1990) observe that equity offerings are more likely to take place following general market expansions, indicating that businesses strategically react to advantageous market conditions. According to Baker and Wurgler (2002), businesses are more likely to repurchase shares during periods of low market valuations and to increase equity capital during periods of high market valuations. This market timing hypothesis suggests that pre-offer share price run-ups reflect a divergence from intrinsic value. Firms capitalize on these periods of overvaluation to issue shares at inflated prices. However, since such misalignments with fundamentals are typically short-lived, the stock price of issuing firms tends to revert downward over time, contributing to their long-run underperformance.

The underperformance of issuing companies over the long term can also be explained by earnings management. Some studies suggest that companies may temporarily inflate their reported earnings ahead of a seasoned equity offering to present a stronger financial position and attract investor interest. However, these artificially boosted earnings are not sustainable, and over time, actual performance fails to meet the elevated expectations set during the offering period, leading to disappointing results and stock underperformance. Teoh et al. (1998) provide empirical evidence that pre-issue earnings manipulation contributes to both weaker post-issue earnings and subsequent stock return declines. Many researchers have questioned the reliability of studies that show long-term underperformance after seasoned equity offerings, claiming that the statistical techniques employed to calculate returns might be flawed. The conventional buy-and-hold abnormal return methodology is critically evaluated by Mitchell and Stafford (2000), who point out that it frequently depends on the irrational presumption of independence across multi-year abnormal returns. They find little evidence to support the idea of long-term underperformance after SEOs when they control for the cross-correlation of returns, a factor that was frequently ignored in previous studies. Similarly, Fama (1998) claims that rather than reflecting actual market inefficiencies, a large portion of the underperformance reported in the literature is probably the consequence of faulty benchmarking models.

Data and Methodology

Sample Construction

The primary dataset was provided confidentially by a leading European investment bank and contains every ABB completed in Europe between 1 January 2022 and 31 December 2024. Because the database is sourced directly from the bank's ECM desk logs, it includes transactions that are often missing from commercial databases like Refinitiv or Dealogic, particularly smaller placements in the Nordic growth markets.

For the purpose of our analysis, we restrict the universe to primary offerings, i.e. those in which new shares are issued and cash flows to the company, excluding pure secondary disposals. The resulting sample comprises 427 transactions (414 capital increases and 13 combined deals).

For each event we compiled daily total-return indices for the issuer and its domestic blue-chip benchmark across two non-overlapping windows, an estimation window extending from -370 to -11 trading days (inclusive) and an event window that begins at -10 trading days, with our abnormal-return tests centred on multiple intervals; returns were calculated only on actual trading days, excluding exchange holidays and early-closing sessions, so the issuer-benchmark series are perfectly calendar-matched and holiday-filtered, providing aligned vectors for model estimations.

Furthermore, we retrieved short-term risk-free rates for every issuer country and then "purified" it using Damodaran's sovereign-risk adjustment: starting with the local-currency 3-month Treasury (or closest-maturity) bill as the nominal risk-free rate, we mapped each sovereign's Moody's rating to its long-run average credit spread over the U.S. T-bill, subtracted that spread to exclude default risk, and, where no liquid bill market existed, replaced the rating spread with the country's 5-year USD CDS spread before performing the same subtraction. The resulting daily series is therefore currency-matched, inflation-consistent and default-free, providing a coherent baseline for beta estimation and abnormal-return calculations across all 19 jurisdictions in the sample.

Descriptive Statistics

The distribution of ABBs is highly concentrated in a few markets (*Figure 1*). The United Kingdom alone accounts for 122 of 427 deals (~28.6%), consistent with the importance of the London market for companies to list their shares. A striking feature is the Nordic footprint: Norway (89; ~20.8%) and Sweden (83; ~19.4%) together represent ~40% of the sample, and this rises to ~47% when Denmark (20; ~4.7%) and Finland (8; ~1.9%) are included, evidence of an active follow-on culture and broad institutional demand in these markets. By contrast, large continental economies such as Germany and France contribute 23 deals each (~5.4% per country), while Spain (8; ~1.9%) and Italy (2; ~0.5%) are sparsely represented, in line with their historically lower reliance on accelerated placements relative to other financing channels.

Figure 2 illustrates how ABBs cluster in a few sectors rather than being evenly spread. Healthcare (74), Computers & Electronics (63), and Real Estate/Property (59) lead the pack and together account for about 46% of all deals, consistent with sectors that combine frequent equity needs (R&D, M&A, growth capex) with deep institutional demand. A second tier, Utilities & Energy and Construction/Building (24 each), Finance (22), Transportation (21), and Oil & Gas (21), adds another ~26%, reflecting capital-intensive or cyclical businesses that tap markets quickly to fund projects or rebalance leverage.

Table 1 illustrates the descriptive statistics of the sample employed in the analysis. The median discount is 6% (mean 8%), with a very wide dispersion. Deal sizes are skewed toward smaller offerings, median €35m versus mean €110m, because a few jumbo transactions (up to €5bn) pull the average up. Day +1 performance[9] is positive on average (median +3%, mean +6%), but again highly dispersed. The percentage of capital sold concentrates around 13% (median) yet shows a long right tail that lifts the mean to 62%.

All four variables display very high skewness and kurtosis, with many outliers. The headline message is unchanged: ABBs are typically modest in size, priced at a mid-single-digit discount, and accompanied by small positive next-day moves, while a few exceptional deals account for much of the dispersion.

The offer price discount in a SEO is measured as the percentage difference between the closing price on the trading day immediately preceding the offer price. *Figure 3* reports the frequency distribution of discounts across the entire sample and shows that they are generally

[9] *Perf. D+1* is equal to the next-day return on the offer price, computed as (Close D+1 - Offer)/Offer. Thus it measures the immediate mark-to-market for investors allocated the newly issued shares sold at discount in the ABB; it is not the issuer's usual close-to-close stock return for all outstanding shares.

small, with most transactions pricing at less than a 10% discount. Formally, for each security i, the discount is defined as:

$$Discount_i = \frac{P_i^{close} - P_i^{offer}}{P_i^{close}} * 100. \quad (1)$$

Figure 4 illustrates that ABBs are relatively small in size: 77% of deals are <€100m, and this rises to ~88% when including the €100–200m bucket. Only a thin upper tail exceeds €200m, about 5% in €200 – 300m, 2% in €300 – 400m, and 4% above €400m. The size distribution is thus highly concentrated in sub-€200m prints, with occasional jumbo transactions rather than a broad middle.

Figure 5 groups ABBs by offer discount and plots the average next-day return on the placement price (Perf. D+1). The pattern is broadly upward-sloping: small discounts (0 – 10%) are followed by modest D+1 gains (low single digits), while larger discounts (≈20 – 40%+) tend to show much stronger next-day performance, consistent with issuers trading price for execution certainty and with investors being compensated for overnight risk. Deals priced at a premium still show a small positive D+1 on average, suggesting books occasionally clear above the prior close when demand is exceptionally strong. The far-right bar (90 – 100% discount) is a clear outlier with an implausibly large average (hatched in the chart) and reflects very few observations.

Figure 6 and *Figure 7* show that ABB discounts are generally modest though with notable variation across sectors and countries. Most industries and markets cluster below the sample average with the majority of sectors and geographies concentrated in the 4 – 7% range.

Methodology

Market Reaction

To capture the market reaction to each primary ABB, we compute daily abnormal returns over multiple event windows and then aggregate them into cumulative abnormal returns (CAR) and cumulative average abnormal returns (CAAR). Two expected-return models are employed:

1. **Market-Adjusted Model (MAM):**

$$AR_{i,t}^{MAM} = R_{it} - R_{m,t}, \quad (2)$$

where R_{it} is the return of stock i on day t and $R_{m,t}$ is the return of the corresponding domestic blue-chip index. This model attributes all market-wide movements to the index and interprets the residual as firm-specific information.

2. **CAPM-based Model:**
Parameters are estimated over the estimation window [-370, -11] using ordinary least squares on daily data:

$$R_{i,t} - r_{f,t} = \alpha_i + \beta_i(R_{m,t} - r_{f,t}) + \epsilon_{i,t}, \tag{3}$$

where $r_{f,t}$denotates the country-specific short-term risk-free rate adjusted as described in the previous section. The abnormal return in the event window is then defined as:

$$AR_{i,t}^{CAPM} = R_{i,t} - [r_{f,t} + \beta_i(R_{m,t} - r_{f,t})]. \tag{4}$$

For each model we compute $CAR_i(\tau_1, \tau_2) = \sum_{\tau_1}^{\tau_2} AR_{i,t}$ over three main horizons, (-10,+10), (-2, +2), (-2,+5), and average across the 427 events to obtain CAAR. Day-specific and cumulative test statistics are derived from the cross-sectional standard error of ARs/CARs, allowing us to assess whether the mean reaction differs significantly from zero.

Following standard event-study practice, we test whether abnormal performance is different from zero both day by day around the announcement date (AAR) and over multi-day windows (CAAR).

Specifically, for each event day we compute the average abnormal return (AAR) across all issuers and test the null hypothesis $H_0: E[AR_{i,t}] = 0$ against the two-sided alternative $H_1: E[AR_{i,t}] \neq 0$. The AAR is defined as:

$$AAR_t = \frac{1}{N_t} \sum_{i=1}^{N_t} AR_{i,t}, \tag{5}$$

And its significance is evaluated with a parametric t-test:

$$t_t = \frac{AAR}{s_t/\sqrt{N_t}}, \quad s_t^2 = \frac{1}{N_t - 1} \sum_{i=1}^{N_t} \left(AR_{i,t} - AAR_t\right)^2. \tag{6}$$

To relax distributional assumptions, we also report the Wilcoxon signed-rank test for the null $median\left(AR_{i,t}\right) = 0$. Let x_i be the non-zero $AR_{i,t}$ observations, n their count, r_i the rank of $|x_i|$, and $sgn(x_i) \in \{-1, +1\}$. The signed-rank statistic can be written as the sum of positive ranks $W^+ = \sum_{i:x_i>0} r_i$. If positive and negative abnormal returns are equally likely, W^+will be close to its expected value under the null, $\mu_W = n(n+1)/4$, with variance $\sigma_W^2 = \frac{n(n+1)(2n+1)}{24}$.

Under the assumption that the subsamples are drawn from the same distribution, the standardized statistic

$$z = \frac{W^+ - \mu_W}{\sigma_W} \sim N(0,1) \tag{7}$$

is then used to calculate p-values.

The same two tests are applied to cumulative abnormal returns (CARs) over multi-day windows W,

$$CAR_i(W) = \sum_{t\in W} AR_{i,t},\ CAAR(W) = \frac{1}{N_W}\sum_{i=1}^{N_W} CAR_i(W), \tag{8}$$

with the following t-statistic

$$t_W = \frac{CAAR(W)}{s_W/\sqrt{N_W}},\ s_W^2 = \frac{1}{N_W - 1}\sum_{i=1}^{N_W}\left(CAR_i(W) - CAAR(W)\right)^2, \tag{9}$$

and the corresponding Wilcoxon test.

Cross-sectional regressions

Cumulative abnormal returns

In addition to the event-study analysis of abnormal returns, we run cross-sectional regressions to identify which deal, market, and firm characteristics help explain the short-term stock performance around ABBs.

For the analysis of market reaction, the dependent variable is the cumulative abnormal return (CAR), calculated over three focal windows: (−10,+10), (−2,+2), and (−2,+5). Regressions are estimated on two samples.

- **Complete sample**: covering all 427[10] primary ABBs, with the following specification:

$$CAR_{i,W} = \alpha + \beta_1 Discount_i + \beta_2 Size_i + \beta_3 IndexAvg_i + \beta_4 IndexVol_i + \gamma_{c(i)} + \delta_{s(i)} + \varepsilon_i$$

- **Reduced sample**: restricted to issuers for which leverage data could be retrieved. The regression extends the baseline specification as follows:

$$CAR_{i,W} = \alpha + \beta_1 Discount_i + \beta_2 Size_i + \beta_3 IndexAvg_i + \beta_4 IndexVol_i + \beta_5 P/B_i + \beta_6 ND/TC_i + \beta_7 TD/E_i + \beta_8 Cost_i + \gamma_{c(i)} + \delta_{s(i)} + \varepsilon_i$$

Notation. In both models, α is the regression constant, while the coefficients β_j capture the marginal effect of the explanatory variables on CARs. Specifically:

- *$Discount_i$*: the facial discount relative to the last closing price;
- *$Size_i$*: the relative size of the issue (as % of capital placed);
- *$IndexAvg_i$*: the average level of the domestic benchmark index over the 60 trading days preceding the ABB;
- *$IndexVol_i$*: the volatility of the domestic benchmark index over the same period;
- *P/B_i*: price-to-book ratio at pricing;
- *ND/TC_i*: net debt to total capital;
- *TD/E_i*: total debt to equity;
- *$Cost_i$* : cost of the SEO, calculated as the value lost by the issuer relative to the proceeds raised, i.e.

[10] *sample sizes by window vary due to data availability*

$$Cost_i = \frac{Value\ Lost_i}{Deal\ Proceeds_i}$$

where *Value lost* is computed as the number of shares outstanding before the ABB multiplied by the difference between the closing price on the day before pricing (−1) and the closing price on the day after pricing (+1). This measures the change in equity value borne by existing shareholders.

The terms $\gamma_{c(i)}$ and $\delta_{s(i)}$ denote the **country** and **sector fixed effects**, respectively. These are introduced as dummy variables, with one category omitted in each case to avoid multicollinearity. They capture systematic differences across countries and industries that are not explained by the deal-level variables. Finally ε_i is the error term.

All regressions are estimated by ordinary least squares (OLS) in Python. Observations with missing or non-numeric values are dropped, and all continuous variables are expressed consistently as percentages or ratios. CARs are based on total returns inclusive of dividends.

Discount

We also investigate the determinants of the issuance discount itself. The dependent variable in these regressions is the **facial discount**, defined as the percentage difference between the offer price and the last closing price prior to the ABB. As with the CAR models, we estimate two specifications: one on the complete sample and one on a reduced sample including balance sheet variables.

- **Complete sample**, where the explanatory variables include deal size (as % of capital and as % of free float), pre-issue market conditions, and country and sector fixed effects:

$$Discount_i = \alpha + \theta_1 Size_i^{Cap} + \theta_2 Size_i^{FF} + \theta_3 IndexAvg_i + \theta_4 IndexVol_i + \gamma_{c(i)} + \delta_{s(i)} + \varepsilon_i$$

- **Reduced sample**, where valuation and capital structure are also included:

$$Discount_i = \alpha + \theta_1 Size_i^{FF} + \theta_2 IndexAvg_i + \theta_3 IndexVol_i + \theta_4 P/B_i + \theta_5 ND/TC_i + \theta_6 TD/E_i + \gamma_{c(i)} + \delta_{s(i)} + \varepsilon_i$$

Notation. Here α is the intercept, θ_j are regression coefficients, γ_c and $\delta_{s(i)}$ are country and sector fixed effects, and ε_i is the error term. Variables are defined as follows:

- $Discount_i$: facial discount (offer price relative to last close).
- $Size_i^{Cap}$: issue size as a % of capital.

- $Size_i^{FF}$: issue size as a % of free float.
- $IndexAvg_i$: average level of the domestic benchmark index over the 60 trading days preceding the ABB.
- $IndexVol_i$: volatility of the domestic benchmark index over the same period.
- P/B_i : price-to-book ratio at pricing.
- ND/TC_i : net debt to total capital.
- TD/E_i: total debt to equity.

As with the CAR regressions, country and sector dummies are included to capture systematic cross-country and cross-industry differences in typical discounts.

All models are estimated by ordinary least squares (OLS) in Python. Observations with missing or non-numeric values are dropped; continuous variables are expressed consistently as percentages or ratios; and the dependent variable is measured in relative terms (discount as a percentage of the last close).

Results

Offer Price Discounts

Accelerated bookbuilding offers differ from traditional SEOs primarily in their speed of execution and the way the issuance discount materializes. In a traditional offering the separation between the announcement date and the actual issuance creates room for investors to anticipate dilution, often leading to a gradual decline in share prices prior to the deal. This anticipation effect amplifies the effective cost of capital raising, as firms not only grant a discount at issuance but also experience a pre-issue price drop. By contrast, ABBs compress the entire process into a matter of hours so that the announcement and the issuance occur almost simultaneously. As a result, the observed discount in ABBs is concentrated in the immediate offer price adjustment rather than spread across multiple trading days[11].

Although ABBs may require offering shares at a steeper single-day discount to ensure rapid uptake by institutional investors, the absence of a pre-issue drift and the reduced exposure to

[11] Gustafson (2018) documents that prolonged SEOs expose firms to significant price pressure, as selling pressure from existing and potential investors during the marketing period exacerbates the downward drift in prices.

price pressure often lower the total effective discount borne by the issuer. This makes ABBs particularly attractive for firms seeking to minimize uncertainty, limit negative signalling effects, and avoid extended downward pressure on their stock prior to completion of the equity raise.

Announcement Effect

As previously explained, we estimate abnormal returns with two complementary models: a Market-adjusted model and a CAPM-based model. Day 0 is the ABB pricing or announcement date (which, for ABBs, usually coincides with issuance), and event time spans short and medium windows). Because ABBs compress announcement and issuance, we expect any price adjustment to be concentrated at day 0. The key question is whether the observed value loss is transitory or persists over time.

To capture the immediate market response to ABB announcements, we begin by examining AARs day by day in the event window [-5, +5]. *Table 2* summarizes the results for both the Market Model and the CAPM specification, while *Figure 8* and *Figure 9* present the bar chart of AARs over the wider [-10, +10] horizon for the Market Model and the CAPM, respectively.

As expected, the most important result occurs on day 0:

- Under the Market Model, the AAR is -2.16%, strongly significant both in the parametric test and the Wilcoxon signed-rank test.
- Under the CAPM, the AAR is very similar at -2.42%, again highly significant across both tests.

This sharp one-day drop is consistent with the design of ABBs: because the announcement and issuance coincide, the full adjustment to dilution and information asymmetry is incorporated immediately into the stock price, leaving minimal room for a gradual drift as in traditional SEOs.

As regards the pre-announcement period, the evidence for anticipation effects is limited.

- In the Market Model, days -5 to -1 show small and statistically insignificant AARs (e.g., -0.43% on day -1, $p>0.05$).
- In the CAPM, we observe slightly stronger signals of mild anticipation: day -3 shows an AAR of -0.39%, and day -1 records -0.42%, which is weakly significant in the Wilcoxon test.

Taken together, these results suggest that leakage of information or pre-announcement trading is not a systematic feature of ABBs. If anything, risk-adjusted returns hint at a minor anticipatory decline, but this is economically small compared to the large adjustment at day 0.

After the announcement, abnormal returns do not reverse. Under both models, days +1 to +5 fluctuate around zero and are mostly insignificant (e.g., Market Model day +1 = -0.71%, not significant; CAPM day +1 = -1.06%, not significant). The absence of positive post-event AARs indicates that the market fully incorporates the ABB discount immediately, without subsequent correction. This persistence suggests that the negative effect is not due to temporary price pressure alone but reflects a lasting valuation adjustment by investors.

Comparing across models, the direction and timing of abnormal returns are very similar, underscoring the robustness of the results. The CAPM yields slightly larger negative AARs around the event window, which implies that after adjusting for systematic risk exposure, ABB issuers experience more pronounced underperformance than indicated by the Market Model. Importantly, these results rely on Blume (1985) adjusted betas[12], which were introduced to correct for the downward bias in OLS beta estimates that arises when estimation windows are short, and firms undergo structural changes in leverage or capital structure. In such situations, traditional beta estimates tend to understate the true systematic risk of the stock, which would in turn lead to an overstatement of abnormal returns.

The treatment of the risk-free rate is also central in this setting. The estimation period coincided with a highly unusual macro-financial environment: in 2022 rates were still at the zero lower bound, while in 2023-2024 inflation accelerated and central banks adopted aggressive restrictive monetary policies, leading to a rapid increase in policy rates. Such volatility in the risk-free rate introduces instability into the CAPM benchmark and can mechanically depress estimated abnormal returns, thereby giving the misleading impression of a persistent negative drift in CAARs.

Post-Announcement Returns

While the daily AARs indicate that ABBs trigger an immediate negative market reaction concentrated on the announcement day, the cumulative analysis provides a broader picture of whether these effects persist in the days and weeks following the issue. *Table 3* summarizes CAARs for different event windows under both the Market Model and the CAPM, while *Figure 10* and *Figure 11* plot the CAAR trajectories.

[12] The Blume adjustment shrinks raw OLS betas toward the cross-sectional mean, reducing estimation error and yielding more reliable measures of expected returns around corporate events such as equity offerings.

The short windows confirm that the announcement effect is not an isolated one-day shock but extends over the days immediately surrounding the ABB.

- In the Market Model, CAAR (-2, +2) equals -3.32%, and CAAR (-2, +5) = -3.50%. Both results are significant under the Wilcoxon test, suggesting that they are not driven by a few extreme observations.
- Under the CAPM, magnitudes are similar but with stronger statistical significance: CAAR (-2, +2) = -3.60%, CAAR (-2, +5) = -4.10%.

When extending the window, the negative impact becomes even clearer.

- In the Market Model, CAAR (-10, +10) = -4.43%, and CAAR (-10, +30) = -4.91%, significant under both tests.
- In the CAPM, these effects are larger: CAAR (-10, +10) = -5.72%, CAAR (-10, +30) = -7.75% and significant under both tests.

This divergence highlights that the underperformance of ABB issuers is even more pronounced after controlling for systematic risk in a volatile rate environment. The CAPM thus captures not only the immediate announcement discount but also a structural reassessment of firm value that extends well beyond the short-run.

The reliability of these findings is reinforced by non-parametric and resampling methods. Wilcoxon signed-rank tests consistently confirm the significance of CAARs across all windows, showing that the results are not driven by outliers.

To further relax distributional assumptions, we resample abnormal returns 10,000 times to construct bootstrap confidence intervals around the CAARs. *Figure 12* and *Figure 13* plot CAAR trajectories with 95% confidence bands for the Market adjusted model and CAPM over the [-10, +10] horizon. In both models, the confidence bands remain strictly below zero from the announcement onwards, leaving no overlap with the null. In the CAPM, the negative drift is even more evident, with confidence intervals widening but never approaching zero up to day +10.

Cross-sectional regression results

To complement the event–study analysis, we estimate cross-sectional regressions to identify which deal, market and firm characteristics explain the variation in abnormal returns and issuance discounts across ABBs. While the event–study showed that average CAARs are negative across all windows, the regressions allow us to explore the heterogeneity of these effects across transactions, clarifying which factors mitigate or exacerbate the adverse market reaction.

CAR regressions

In the complete sample, explanatory power is modest, with R^2 values between 0.19 and 0.27 across windows (*Table 4*). The most consistent driver is the relative size of the placement: larger transactions, measured as a percentage of capital, are associated with higher cumulative abnormal returns, suggesting that investors do not penalise larger offerings for dilution, instead ??? view them more favourably, possibly because they tend to involve stronger issuers or better prepared transactions. The facial discount is not significant in the short horizons and only marginally positive in the (−10,+10) window, while market background variables do not materially affect outcomes. Among the fixed effects, Switzerland is associated with higher CARs and the Metal & Steel sector shows stronger returns in the longer horizon.

- % of Capital:
  – (−2,+2): $\beta = 0.0387$, $t = 10.41$, $p < 0.001$
  – (−2,+5): $\beta = 0.0282$, $t = 8.25$, $p < 0.001$
  – (−10,+10): $\beta = 0.0173$, $t = 4.88$, $p < 0.001$
- Facial Discount: not significant (short horizons), marginally positive at (−10,+10) ($t = 1.66$, $p = 0.097$).
- Switzerland: $\beta \approx 0.36$ (short windows, $p < 0.05$).
- Metal & Steel: $\beta = 0.62$ (long window, $p < 0.001$).

When the analysis is restricted to the reduced sample with leverage, valuation, and cost variables, explanatory power rises substantially (*Table 5*). The positive size effect remains strong, but in this specification the facial discount becomes highly significant with a positive sign. Since discounts are defined as negative numbers, this implies that deeper discounts (more negative values) drive CARs lower, i.e. they are associated with worse aftermarket performance. Thus, larger concessions do not facilitate stronger abnormal returns, instead coincide with more negative outcomes. The cost variable also enters negatively and significantly: issues that destroyed more value relative to proceeds in the immediate (−1,+1) window record weaker CARs in all horizons. Valuation multiples and leverage ratios remain insignificant. Most country and sector dummies are muted once controls are included, with the exception of a negative effect in the Transportation sector.

- % of Capital:
  – (−2,+2): $\beta = 0.1159$, $t = 24.52$, $p < 0.001$
  – (−2,+5): $\beta = 0.0903$, $t = 19.10$, $p < 0.001$
  – (−10,+10): $\beta = 0.0585$, $t = 10.82$, $p < 0.001$

- Facial Discount:
  – (−2,+2): $\beta = 0.9845$, $t = 10.94$, $p < 0.001$
  – (−2,+5): $\beta = 0.9632$, $t = 10.71$, $p < 0.001$
  – (−10,+10): $\beta = 0.7216$, $t = 7.01$, $p < 0.001$

- SEO Cost:
  – (−2,+2): $\beta = -0.0406$, $t = -3.46$, $p = 0.001$
  – (−2,+5): $\beta = -0.0457$, $t = -3.91$, $p < 0.001$
  – (−10,+10): $\beta = -0.0509$, $t = -3.79$, $p < 0.001$

Overall, the CAR regressions indicate that aftermarket performance is shaped by placement mechanics. Larger deals are rewarded by investors, while deeper discounts and higher SEO costs are penalised with more negative CARs. Firm fundamentals are not significant.

Discount regressions

In the complete sample, about 30% of the variation in discounts is explained (*Table 6*). Deal size and market conditions are not significant, but there is sectoral heterogeneity: telecommunications offerings are associated with shallower discounts, while transportation placements are priced with deeper ones.

- Telecoms: $\beta = +116.8$, $t = 8.60$, $p < 0.001$

- Transportation: $\beta = -21.0$, $t = -2.88$, $p = 0.004$

In the reduced sample, explanatory power improves substantially (*Table 7*). The key drivers are float absorption and SEO cost. The percentage of free float placed enters with a negative and highly significant coefficient, which, given that discounts are negative numbers, means that larger placements relative to float are associated with deeper discounts. The cost variable is likewise negative and significant, confirming that transactions imposing greater value losses required larger concessions at pricing. Fundamentals such as P/B and leverage ratios remain insignificant. Sectoral patterns persist: mining and oil & gas transactions are associated with deeper discounts, whereas chemicals show marginally shallower ones.

- % of Free Float: $\beta = -0.0160$, $t = -10.09$, $p < 0.001$

- SEO Cost: $\beta = -0.0408$, $t = -5.64$, $p < 0.001$

- Mining: $\beta = -0.109$, $t = -2.28$, $p = 0.023$

- Oil & Gas: $\beta = -0.098$, $t = -2.35$, $p = 0.020$

- Chemicals: $\beta = +0.087$, $t = 1.91$, $p \approx 0.057$

Together, these results confirm that the depth of discounts is largely determined by float absorption and the extent of value destruction around the placement, with sectoral heterogeneity but little explanatory power from firm fundamentals or market background.

Additional robustness tests

Since the discount variable is mechanically linked to the relative size of the offering, we test whether its apparent significance in the CAR regressions reflects a genuine effect or simply collinearity with % of Capital. The discount regressions (*Tables 6 and 7*) already indicate that larger placements are priced with deeper concessions, suggesting the potential for overlap between the two variables in the CAR specifications. To address this concern, we re-estimate the CAR regressions under alternative specifications that exclude one of the two.

When discount is excluded from the extended sample (*Table 8*), results remain virtually unchanged: the coefficient on % of Capital stays strongly positive and highly significant across all windows, and explanatory power is unaffected. This confirms that discount does not play an independent role in explaining CARs in the extended specification.

By contrast, when % of Capital is excluded from the reduced sample (*Table 9*), explanatory power deteriorates sharply (adjusted R^2 falls from ~0.32 to ~0.05), and discount itself loses significance across all horizons. This outcome shows that discount is not an independent driver of CARs: its apparent effect in the baseline reduced regressions (*Table 5*) only arises once deal size is controlled for.

Finally, when we exclude discount from the reduced specification (*Table 10*), explanatory power not only holds but improves substantially, with adjusted R^2 values ranging from 0.20 to over 0.50 depending on the horizon. In this setting, % of Capital remains strongly positive and highly significant, while SEO cost retains a consistently negative and significant impact. This confirms that deal size and issuance cost are the genuine drivers of abnormal returns in the reduced model, and that the role of discount is fully absorbed once these two variables are included.

This pattern is consistent with the discount regressions (Tables 6 and 7), which show that % of Capital is itself a key determinant of discount levels. Taken together, these robustness tests demonstrate that pricing and size channels are intertwined: the impact of discounts on abnormal returns cannot be interpreted in isolation, but only relative to the magnitude of the placement.

The overall evidence presents a coherent picture. Larger issues are consistently rewarded with better aftermarket performance, while higher SEO costs are penalised with more negative

CARs. Discounts, in contrast, do not emerge as an independent driver: they matter only when unusually deep relative to the size of the deal. At the same time, deeper discounts are themselves explained by float absorption and by higher SEO costs, suggesting that issuers are compelled to grant larger concessions precisely in situations where market conditions and absorption capacity are weakest. Balance sheet indicators play no role, while sectoral differences appear only in specific industries.

Conclusion

The aim of this paper was to investigate the impact of non-pre-emptive capital increases executed through accelerated bookbuildings (ABBs) on short-term shareholder returns. It adds to the existing body of research by focusing specifically on accelerated placements in Europe, using a proprietary dataset of 427 transactions completed between 2022 and 2024. By combining an event study approach with cross-sectional regressions, the analysis provides fresh evidence on the market reaction to ABBs and the role of deal characteristics such as placement size, issuance discounts, and transaction costs.

The findings confirm prior expectations by showing that ABB announcements generate immediate negative cumulative average abnormal returns (CAARs), concentrated on the announcement date and not subsequently reversed. Furthermore, the results highlight that larger placements are generally received more positively by investors, while higher issuance costs systematically reduce aftermarket performance. Although discounts appear significant in baseline models, their explanatory power vanishes once issue size and cost are controlled for, indicating that they operate more as byproducts of transaction mechanics than as independent drivers of performance.

This study contributes to the literature by clarifying that the short-term market response to ABBs is primarily shaped by placement design, whereas firm-level characteristics such as capital structure and valuation ratios play no material role. For practitioners, the results underline that successful outcomes depend less on balance-sheet metrics than on execution parameters such as sizing and cost management.

Nevertheless, this research has limitations. The dataset covers only European transactions over a three-year period, which may constrain the generalisability of results to other geographies or longer horizons. Moreover, the focus on short-term abnormal returns does not capture the longer-run performance of issuing firms, which could yield different insights. Finally, while this study incorporates core variables related to size, cost, and discounts, additional factors such as investor composition or allocation strategies may provide further explanatory power.

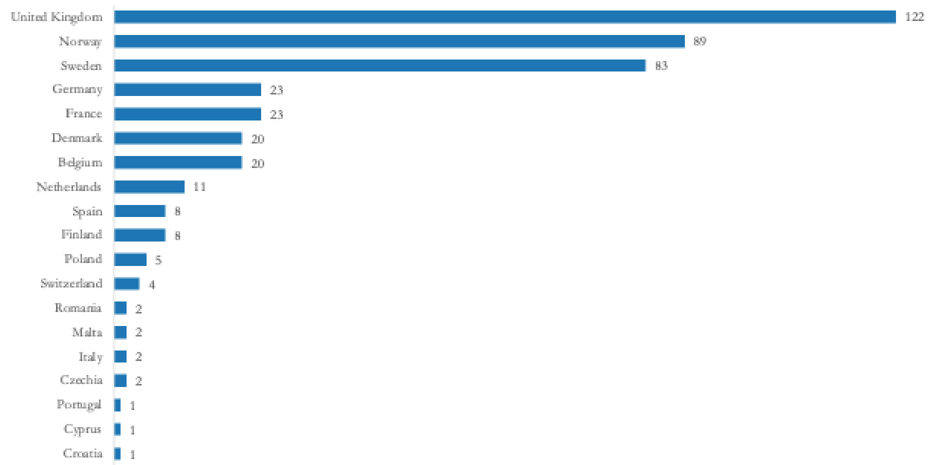
Building on this research, future studies could extend the analysis across broader timeframes and geographies, or incorporate more granular transaction-level data, such as investor allocation or bookbuilding dynamics. A deeper exploration of the mechanisms behind investor preferences for larger offerings, possibly through case studies or qualitative interviews, would also provide valuable context.

In conclusion, this thesis demonstrates that ABBs in Europe are associated with persistent negative announcement effects, yet the magnitude of this impact depends critically on deal structure. Ultimately, accelerated placements represent a market mechanism where execution quality, rather than capital structure, determines how investors absorb new equity issuance.

Appendix A: Figures and Graphs

Figure 1:
Geographic distribution of ABBs in Europe since 2022

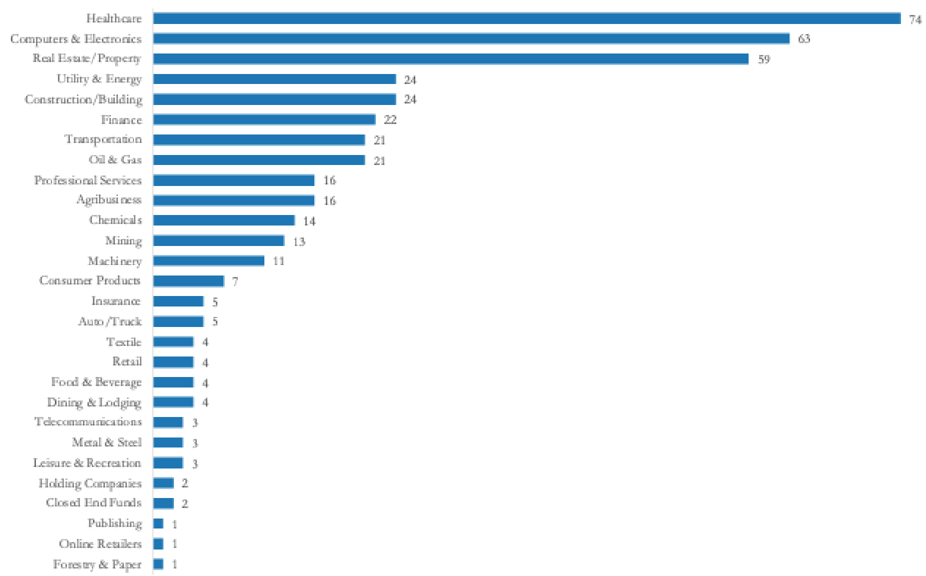
Figure 1: Geographic distribution of ABBs in Europe since 2022



Horizontal bars report the number of offerings by issuer country. The sample spans 19 European countries; the United Kingdom (122), Norway (89), and Sweden (83) dominate, together accounting for ≈69% of all events. Germany and France follow (23 each), with a long tail of smaller markets.

Figure 2:
Industry distribution of ABBs in Europe since 2022

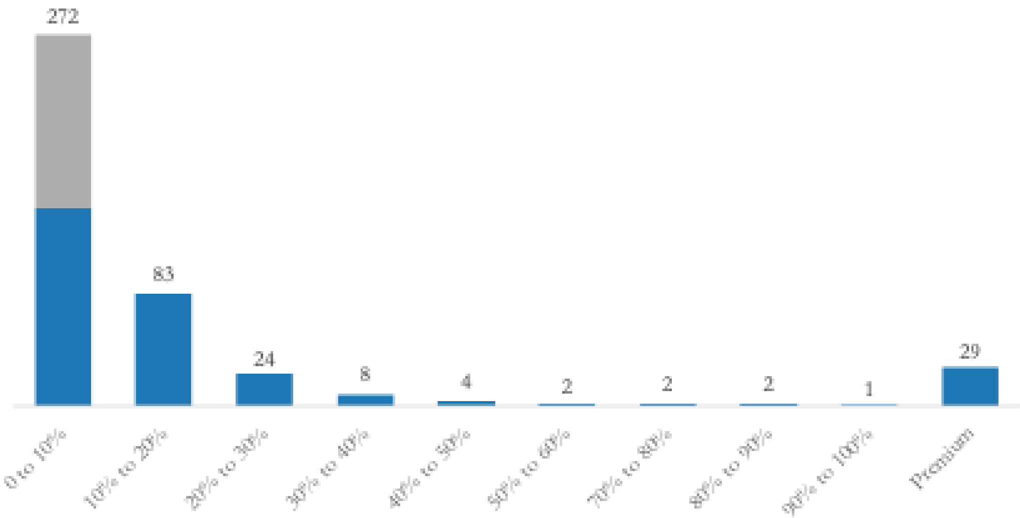
Figure 2: Industry distribution of ABBs in Europe since 2022



Horizontal bars show the number of offerings by industry. The sample is concentrated in Healthcare (74), Computers & Electronics (63), and Real Estate/Property (59), which together account for ≈46% of all events. Utilities/Energy and Construction/Building follow (24 each), with the remainder spread across a long tail of smaller sectors.

Figure 3:
Distribution of offer-price discounts
Discount = (Pre-Issue Close - Offer Price)/Pre-Issue Close. Bins are 10pp wide; "Premium" denotes negative discounts.

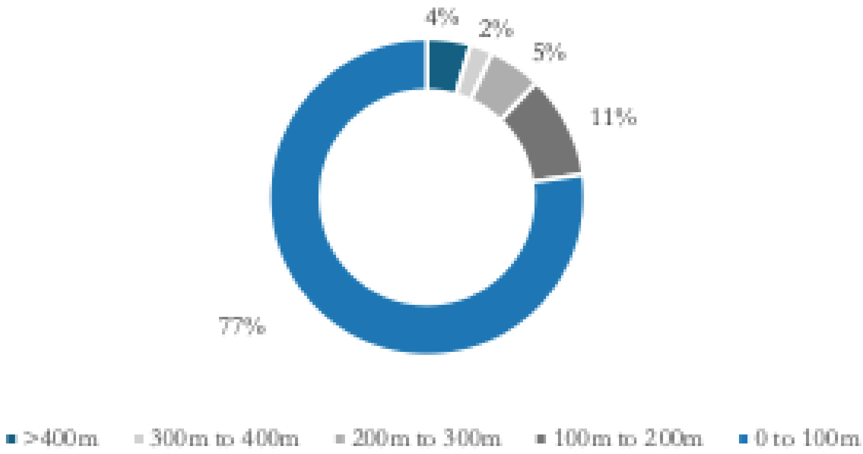
Figure 3: Distribution of offer-price discounts



Bars group facial discounts into 10-percentage-point bins; the Premium bar captures offerings priced above the pre-issue close (negative discounts). The first bar (0 – 10%) is stacked: blue = 0 – 5% (145), grey = 5 – 10% (127); the value label (272) reports the total for the bin. The distribution is concentrated in small discounts, 272 deals in 0 – 10% and 83 in 10 – 20% (≈83% within ≤20%). Only 24 deals fall in 20 – 30%, 19 exceed 30% in total, and 29 offerings are priced at a premium (≈7%).

Figure 4:
Distribution of deal sizes
Deal size in € millions (gross proceeds), buckets are mutually exclusive and exhaustive.

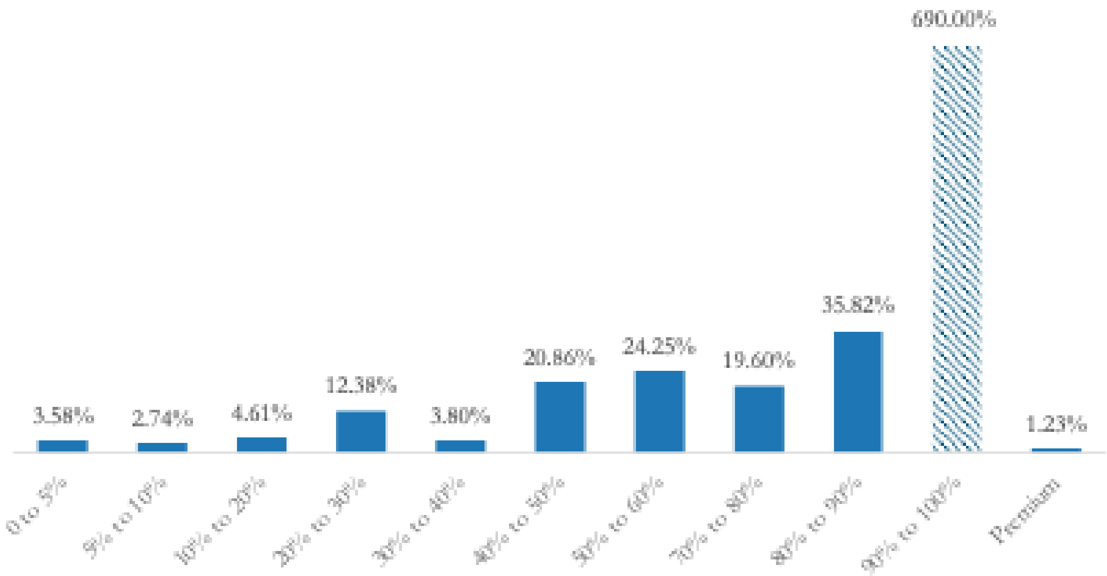
Figure 4: Distribution of deal sizes



The doughnut reports the share of offerings by size bucket (percent of N = 427 deals). The market is dominated by small issues (88% are ≤€200m) while very large offerings (>€400m) are rare.

Figure 5:
Day-after performance by offer-price discount bucket

Figure 5: Day-after performance by offer-price discount bucket

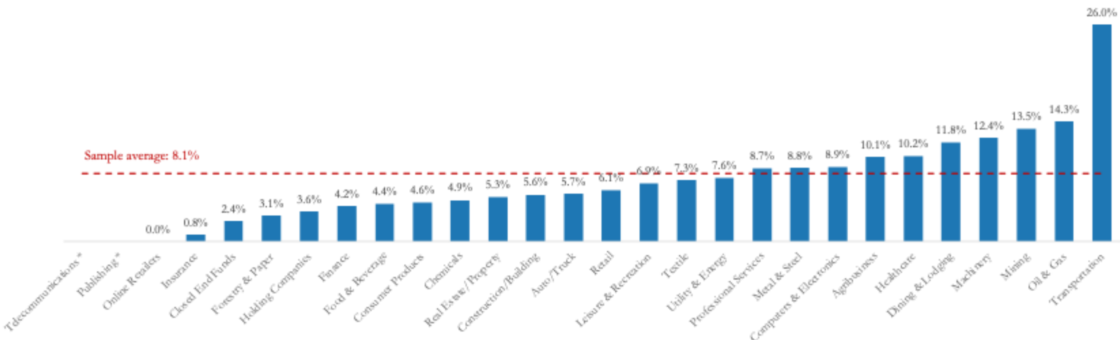


Bars report the mean stock return on day +1 (offer-to-close) for offerings grouped by facial discount at issuance. Buckets are 10-percentage-point wide; the 0 – 10% range is split into 0 – 5% and 5 – 10%. Returns generally increase with deeper discounts. The 90 – 100% bucket (hatched, 690%) is driven by an extreme observation and should be interpreted with caution. The Premium bar refers to offerings priced above the pre-issue close.

Figure 6:
Average offer-price discount by industry

Discount = (Pre-Issue close − Offer Price)/Pre-Issue Close. Means are unweighted; industry per dataset classification. * denotes industries with average premium.

Figure 6: Average offer-price discount by industry

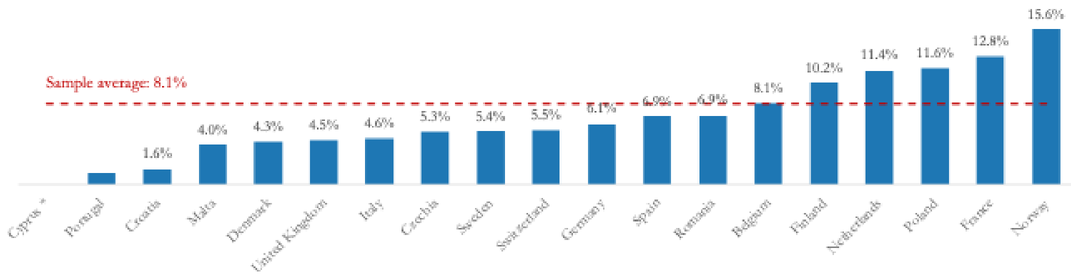


Bars show the mean facial discount at issuance for each industry; the red dashed line marks the sample average of 8.1%. Discounts vary widely across sectors, with Transportation (26.0%) and Oil & Gas (14.3%) at the top end, followed by Mining (13.5%) and Machinery (12.4%). At the low end, the two asterisked industries (*) exhibit an average premium while several others (e.g., Online Retailers, Closed-End Funds) are close to zero.

Figure 7:
Average offer-price discount by country

Discount = (Pre-Issue Close − Offer Price)/Pre-Issue Close. Country means are unweighted. * denotes countries with average premium.

Figure 7: Average offer-price discount by country

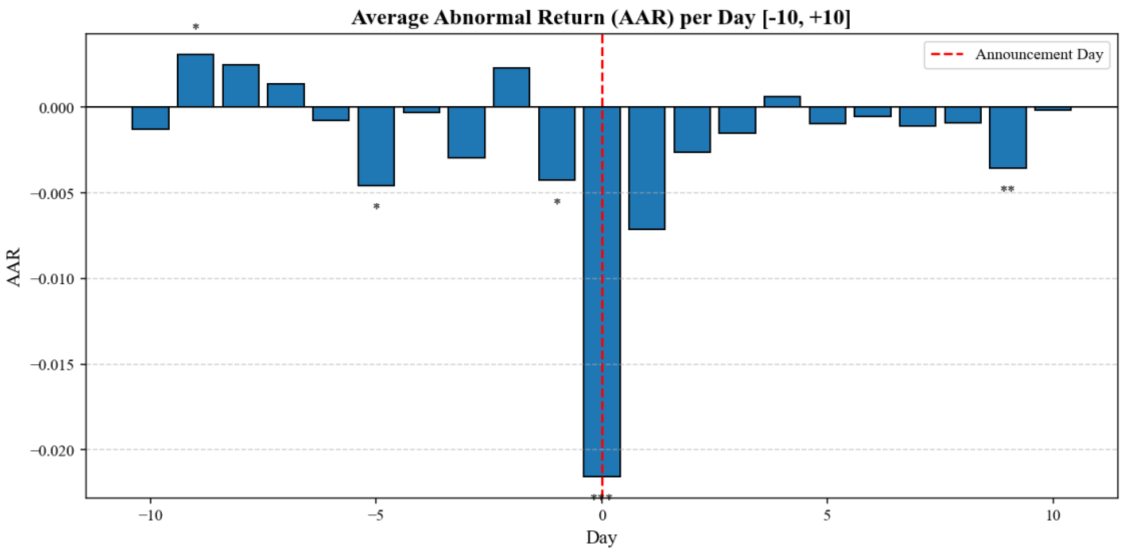


Bars show the mean facial discount at issuance by issuer country; the red dashed line marks the sample average of 8.1%. Discounts vary widely across markets: Norway (15.6%) is highest, followed by France (12.8%), Poland (11.6%), and the Netherlands (11.4%). Cyprus (*) shows an average premium.

Figure 8:
Average abnormal returns around the announcement (event days −10 to +10) – Market Model

AAR from a Market Model as defined in the study; day labels in trading days. Significance coding: * p<0.10, ** p<0.05, *** p<0.01 (t-test).

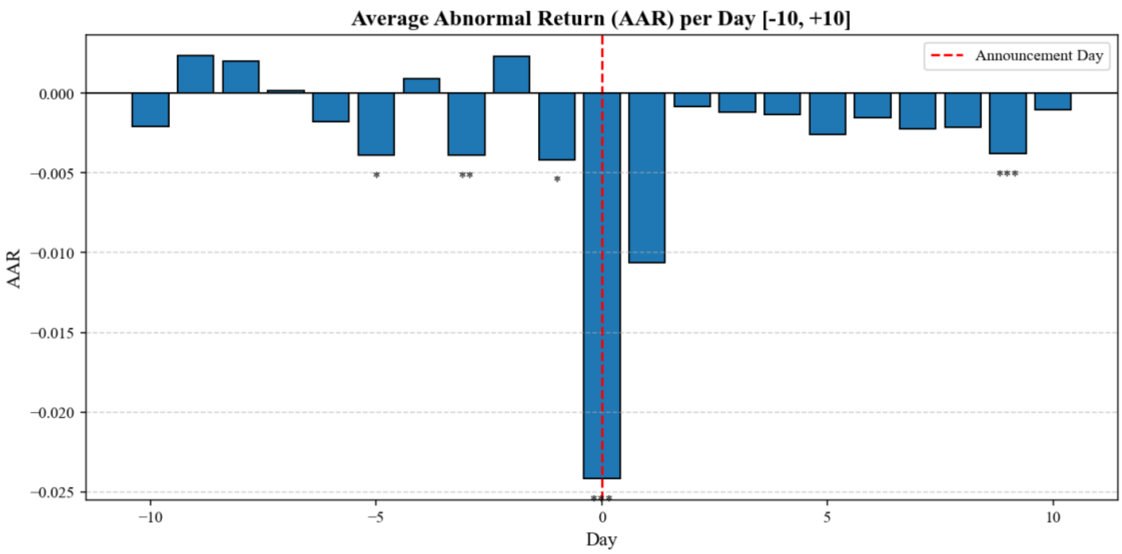
Figure 8: Average abnormal returns around the announcement (event days −10 to +10) – Market Model



Bars plot the AAR for each event day relative to the announcement (day 0, red dashed line). Abnormal returns are averaged across the sample of offerings. The figure shows a pronounced negative reaction on day 0 and otherwise small moves before and after the event, with only sporadic significance.

Figure 9:
Average abnormal returns around the announcement (event days −10 to +10) – CAPM
AAR from CAPM as defined in the study; day labels in trading days. Significance coding: * p<0.10, ** p<0.05, *** p<0.01 (t-test).

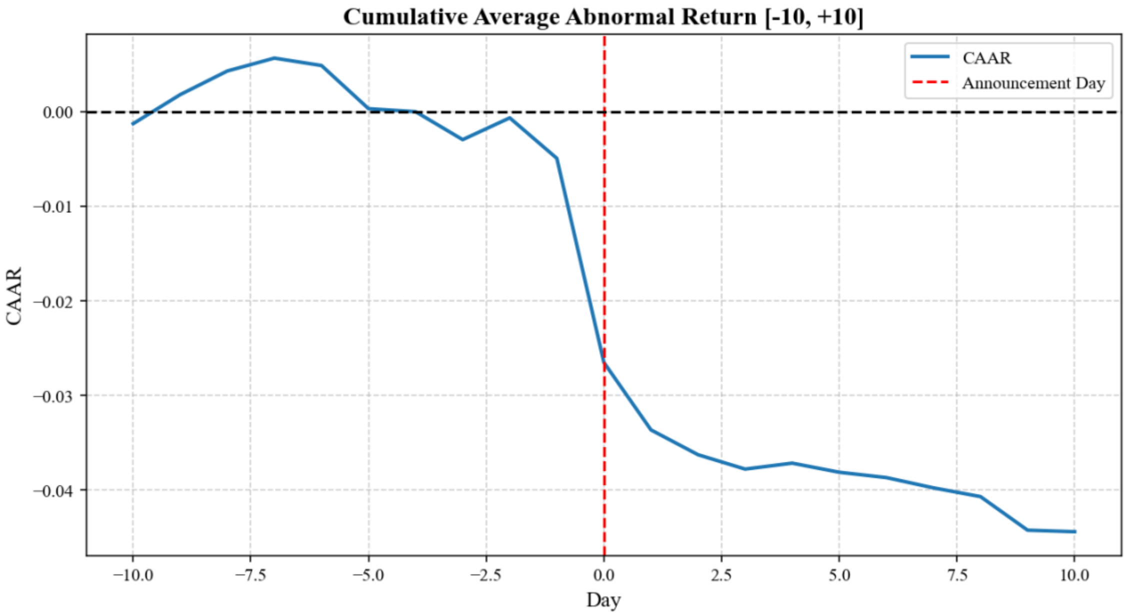
Figure 9: Average abnormal returns around the announcement (event days −10 to +10) – CAPM



Bars plot AAR by event day using a CAPM specification estimated on a pre-event window (-370 to -11). Day 0 (red dashed line) shows a sharp negative reaction of ≈-2.5%, followed by a further ≈-1.0% on day +1; pre-announcement moves are small with a few slightly significant negatives.

Figure 10:
CAAR around the announcement – Market Model
CAAR is the cross-sectional mean of cumulative ARs in the window [-10,+10].

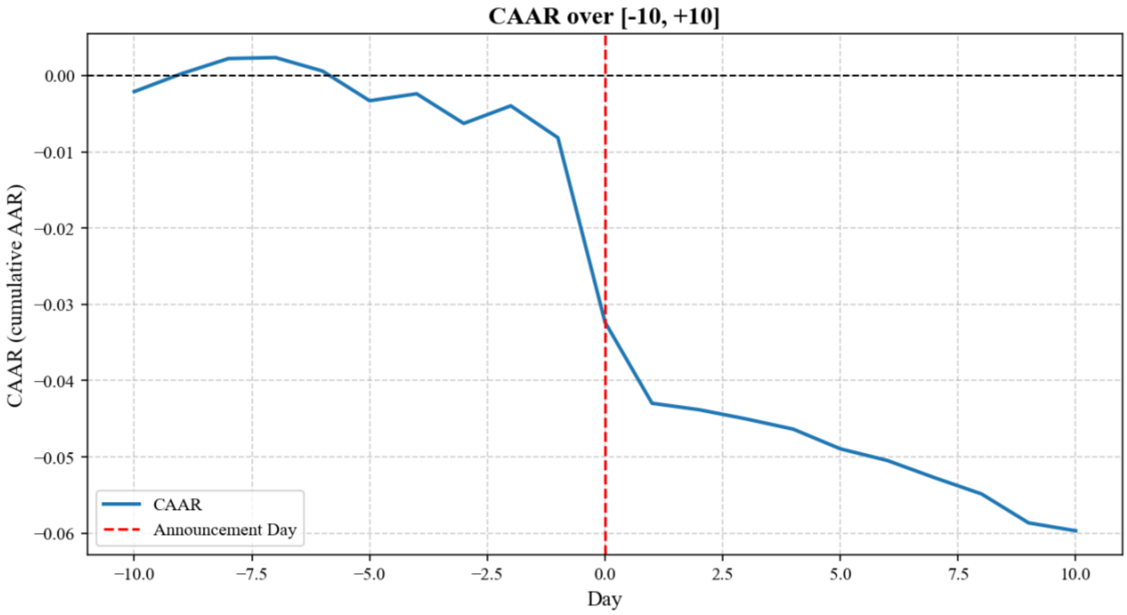
Figure 10: CAAR around the announcement – Market Model



The line plots the cumulative average abnormal return (CAAR) using a Market Model. The red dashed line marks the announcement (day 0); the horizontal dashed line is zero. CAAR is near flat/slightly positive before the event, then shows a sharp step-down at day 0 (≈-2.5%) and continues to drift lower to ≈-4.5% by day +10, indicating a persistent negative reaction following the announcement.

Figure 11:
CAAR around the announcement – CAPM
CAAR is the cross-sectional mean of cumulative ARs in the window [-10,+10].

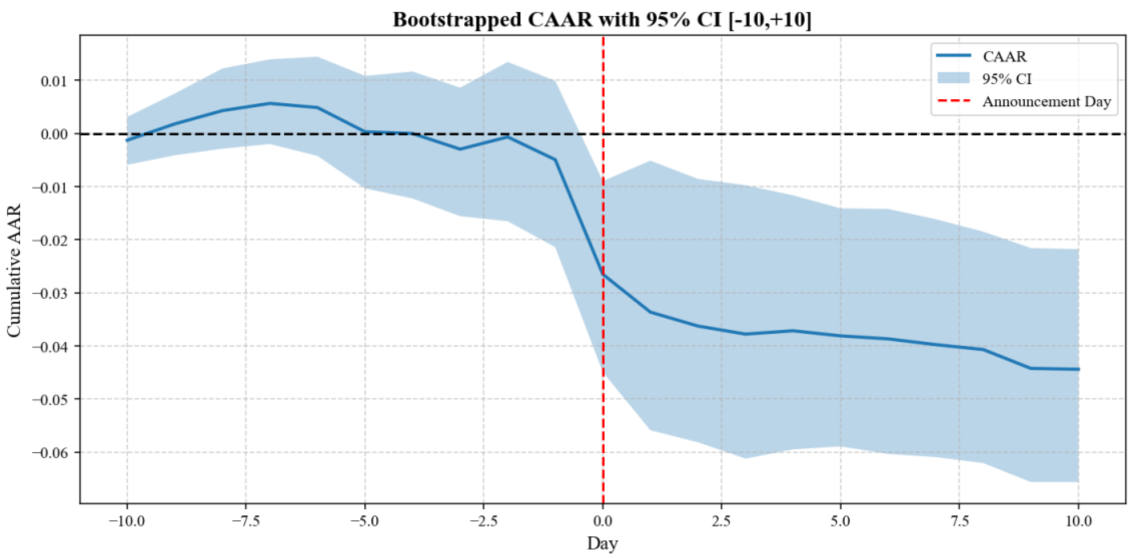
Figure 11: CAAR around the announcement – CAPM



The line shows the cumulative average abnormal return (CAAR) using a CAPM specification estimated on a pre-event window (-370 to -11). The red dashed line marks the announcement (day 0). CAAR is near flat/slightly positive before the event, then exhibits a sharp drop at day 0 (≈-3%) and continues to drift down to ≈-6% by day +10, indicating a persistent negative reaction after the announcement.

Figure 12:
Bootstrapped CAAR around the announcement – Market Model
Bootstrap CI computed by resampling events.

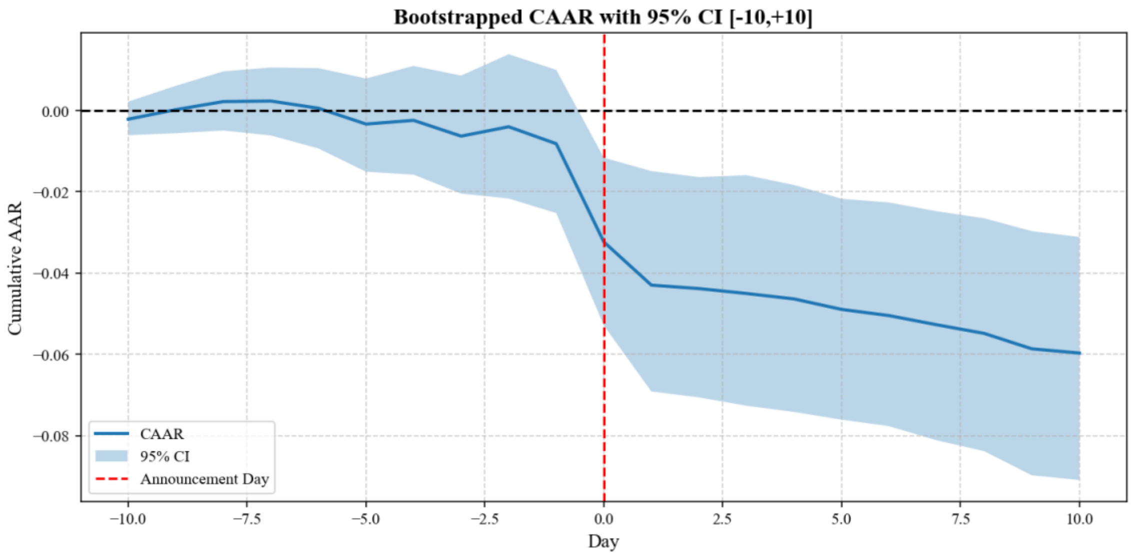
Figure 12: Bootstrapped CAAR around the announcement – Market Model



The line plots the cumulative average abnormal return (CAAR) using a Market Model. The red dashed line marks the announcement (day 0); the shaded band is a 95% confidence interval from a non-parametric bootstrap (resampling events with replacement).

Figure 13:
Bootstrapped CAAR around the announcement - CAPM
Bootstrap CI computed by resampling events.

Figure 13: Bootstrapped CAAR around the announcement - CAPM



The line plots the cumulative average abnormal return (CAAR) using the CAPM. The red dashed line marks the announcement (day 0); the shaded band is a 95% confidence interval from a non-parametric bootstrap (resampling events with replacement).

Appendix B: Tables

Table 1:
Summary statistics of the offering characteristics
Deal size in €m; Perf. D+1 is the stock return from offer price to close on day +1; Discount is the offer-price discount vs the pre-issue close; % of Capital is the issuance size relative to pre-issue equity.

Table 1: Summary statistics of the offering characteristics

	Discount	Deal size	Perf. D+1	% of Capital
Obs	427	427	427	427
Mean	-8%	110	6%	62%
Std. Dev.	0.23	301.59	0.34	3.26
Skewness	11.25	10.98	18.53	10.70
Kurtosis	200.52	164.54	365.40	123.50
Median	-6%	35	3%	13%
Max	381%	5,000	690%	4,286%
Min	-96%	8	-25%	2%

Table reports distributional statistics for Discount, Deal size, Perf. D+1, and % of Capital. We show mean, standard deviation, skewness, kurtosis, median, and range (min–max). All variables are strongly right-skewed with very high kurtosis, indicating a few extreme observations; medians (-6% discount, €35m size, +3% D+1, 13% of capital) are therefore more representative than means. Figures are computed at the event level.

Table 2:
Daily AAR around pricing (Market Model vs CAPM)
Abnormal returns defined as: $AR_{i,t}^{MAM} = R_{it} - R_{m,t}$, $AR_{i,t}^{CAPM} = R_{i,t} - [r_{f,t} + \beta_i(R_{m,t} - r_{f,t})]$. For the CAPM, parameters are estimated on the pre-event window (e.g., [-370,-11]); market index and risk-free rate as defined in the study.

Table 2: Daily AAR around pricing (Market Model vs CAPM)

	Market Model			CAPM		
Day before pricing	AAR	p-value (t-test)	p-value (Wilcoxon test)	AAR	p-value (t-test)	p-value (Wilcoxon test)
-5	-0.00456 (0.00235)	5.29E-02	2.58E-02	-0.00389 (0.00219)	7.62E-02	2.13E-02
-4	-0.00319 (0.00196)	8.71E-01	7.66E-01	0.00091 (0.00294)	7.57E-01	1.51E-01
-3	-0.00295 (0.00193)	1.26E-01	9.63E-03	-0.00389 (0.00195)	4.71E-02	1.00E-04
-2	0.00230 (0.0036)	5.23E-01	1.38E-01	0.00231 (0.00322)	4.73E-01	7.37E-02
-1	-0.00428 (0.00237)	7.20E-02	4.49E-02	-0.00418 (0.00239)	8.15E-02	2.33E-02
0	-0.02157 (0.00487)	1.42E-05	3.72E-06	-0.02416 (0.00445)	1.00E-07	1.28E-08
+1	-0.00713 (0.01405)	6.12E-01	7.75E-09	-0.01065 (0.01181)	3.68E-01	2.75E-12
+2	-0.00262 (0.00192)	1.72E-01	6.54E-02	-0.00085 (0.00190)	6.56E-01	1.58E-01
+3	-0.00152 (0.00177)	3.93E-01	2.25E-02	-0.00121 (0.0019)	5.25E-01	8.96E-03
+4	0.00063 (0.00251)	8.04E-01	5.50E-01	-0.00134 (0.00224)	5.49E-01	4.03E-01
+5	-0.00096 (0.00241)	6.89E-01	4.13E-01	-0.00258 (0.00207)	2.13E-01	5.22E-02

Table reports average abnormal returns (AAR) from day −5 to +5 relative to pricing (day 0) under the Market Model and CAPM. Parentheses show cross-sectional standard errors; two-sided p-values come from a t-test (mean = 0) and Wilcoxon signed-rank test (median = 0). The pricing day shows a large, negative reaction, -2.16% (MM) and -2.42% (CAPM), highly significant in both tests. Pre-event days display small, mostly negative AARs with mixed significance (e.g., -0.43% on day -1), while post-event days are generally close to zero and not consistently significant.

Table 3:
CAAR by event window (Market Model vs CAPM)
Abnormal returns defined as: $AR_{i,t}^{MAM} = R_{it} - R_{m,t}$, $AR_{i,t}^{CAPM} = R_{i,t} - [r_{f,t} + \beta_i(R_{m,t} - r_{f,t})]$. For the CAPM, parameters are estimated on the pre-event window (e.g., [-370,-11]); market index and risk-free rate as defined in the study.

Table 3: CAAR by event window (Market Model vs CAPM)

	Market Model			CAPM		
Window	CAAR	p-value (t-test)	p-value (Wilcoxon test)	CAAR	p-value (t-test)	p-value (Wilcoxon test)
[-2,+2]	-0.03320 (0.01476)	2.51E-02	9.52E-13	-0.03595 (0.01233)	3.73E-03	9.34E-14
[-2,+5]	-0.03504 (0.01274)	6.26E-03	5.31E-10	-0.040861 (0.01137)	3.73E-03	1.31E-10
[-10,+10]	-0.04428 (0.01152)	1.45E-04	1.36E-06	-0.05718 (0.01456)	9.97E-05	1.04E-06

Table reports cumulative average abnormal returns (CAAR) over the windows [-2,+2], [-2,+5], and [-10,+10] relative to the announcement (day 0) under the Market Model and CAPM. Parentheses show cross-sectional standard errors; two-sided p-values are from a t-test (mean = 0) and a Wilcoxon signed-rank test (median = 0). CAARs are negative and statistically significant in all windows for both models.

Table 4:
CAR regressions (extended sample)
The table presents cross-sectional regressions of cumulative abnormal returns (CARs) in the extended sample over three event windows, [−2,+2], [−2,+5], and [−10,+10]. Explanatory variables include the facial discount, the relative size of the placement, and market background indicators.

Table 4: CAR regressions (extended sample)

Statistic	[-2;+2] Value	[-2;+5] Value	[-10;+10] Value
Observations	424	424	424
R-squared	0.269	0.223	0.186
Adj. R-squarec	0.174	0.121	0.08
F-statistic	2.814	2.186	1.749
Prob (F-stat)	1.69E-08	0.0000243	0.00224

	[-2;+2]				[-2;+5]				[-10;+10]			
Variable	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value
Facial Discount	-0.0006	0.001	-0.976	0.33	0.0004	0.001	0.655	0.513	0.0009	0.001	1.662	0.097
Index Avg -60 to -1	-12.6384	15.194	-0.832	0.406	-14.7661	13.98	-1.056	0.292	10.4597	14.503	0.721	0.471
Index Volatility -60 to -1	1.4202	4.815	0.295	0.768	0.5622	4.43	0.127	0.899	0.1989	4.596	0.043	0.965
% of Capital	0.0387	0.004	10.409	0	0.0282	0.003	8.247	0	0.0173	0.004	4.881	0

The relative size of the issue is positive and highly significant across all windows, indicating that larger placements are associated with higher CARs. The discount variable is not significant in the short horizons and only marginally positive in the longer window, while market background variables add little explanatory power. Overall, these results show that transaction size is the main determinant of abnormal returns in the extended sample.

Table 5:
CAR regressions (reduced sample)
The table reports regressions of CARs in the reduced sample, where valuation multiples, leverage ratios, and the SEO cost are also included.

Table 5: CAR regressions (reduced sample)

Statistic	[-2;+2] Value	[-2;+5] Value	[-10;+10] Value
Observations	340	340	340
R-squared	0.716	0.629	0.419
Adj. R-squarec	0.667	0.565	0.318
F-statistic	14.61	9.8	4.166
Prob (F-stat)	2.24E-54	7.62E-39	7.51E-15

	[-2;+2]				[-2;+5]				[-10;+10]			
Variable	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value
Facial Discount	0.9845	0.09	10.944	0	0.9632	0.09	10.708	0	0.7216	0.103	7.005	0
Index Avg -60 to -1	-0.0799	12.07	-0.007	0.995	-6.1229	12.069	-0.507	0.612	7.7597	13.82	0.561	0.575
Index Volatility -60 to -1	0.3117	3.924	0.079	0.937	-0.1733	3.924	-0.044	0.965	4.0094	4.494	0.892	0.373
% of Capital	0.1159	0.005	24.517	0	0.0903	0.005	19.102	0	0.0585	0.005	10.817	0
P/B at pricing	0.000067	0.000126	0.534	0.593	0.0001	0.000116	0.863	0.389	0.0001	0.000116	0.861	0.39
Net Debt/Tot Cap	0.0041	0.025	0.165	0.869	0.0117	0.025	0.471	0.638	0.0356	0.028	1.253	0.211
Total Debt/Equity	-0.0023	0.002	-1.442	0.15	-0.0022	0.002	-1.408	0.16	-0.0019	0.002	-1.033	0.302
SEO Cost	-0.0406	0.012	-3.464	0.001	-0.0457	0.012	-3.906	0	-0.0509	0.013	-3.793	0

Issue size remains strongly positive and significant in all windows. The discount variable becomes highly significant with a positive sign, which, given that discounts are recorded as negative numbers, implies that deeper discounts are associated with lower CARs and thus weaker market performance. The SEO cost also enters negatively and significantly, confirming that higher value destruction leads to more negative abnormal returns. Other balance sheet variables are not significant. Overall, the reduced sample results reinforce that placement mechanics and execution quality are the main drivers of short-term performance.

Table 6:
Discount regressions (extended sample)
The table presents cross-sectional regressions of the facial discount on deal size, free float absorption, and pre-issue market indicators.

Table 6: Discount regressions (extended sample)

	Discount Extended			
		Statistic	Value	
		Observations	420	
		R-squared	0.305	
		Adj. R-squarec	0.213	
		F-statistic	3.321	
		Prob (F-stat)	3.8E-11	
Variable	Coefficient	Std. Error	t-Statistic	p-Value
Index Avg -60 to -1	-2320.3366	1346.952	-1.723	0.086
Index Volatility -60 to -1	-634.2497	427.973	-1.482	0.139
% of Capital	0.4875	1.092	0.447	0.655
% of Free Float	0.2127	0.717	0.297	0.767

The explanatory power of the model is modest. Neither deal size nor market background variables are significant in explaining the discount. The results suggest that, in the aggregate, discounts are not systematically related to these observable characteristics in the extended sample.

Table 7:
Discount regressions (reduced sample)
The table reports regressions of the facial discount in the reduced sample, where firm-level variables (valuation multiples, leverage ratios) and the SEO cost are also included.

Table 7: Discount regressions (reduced sample)

	Discount Reduced			
		Statistic	Value	
		Observations	337	
		R-squared	0.478	
		Adj. R-squarec	0.389	
		F-statistic	5.359	
		Prob (F-stat)	2.95E-20	
Variable	Coefficient	Std. Error	t-Statistic	p-Value
Index Avg -60 to -1	-8.0553	7.848	-1.026	0.306
Index Volatility -60 to -1	-0.1665	2.574	-0.065	0.948
% of Free Float	-0.016	0.002	-10.091	0
P/B at pricing	0.00004154	0.000082	0.507	0.613
Net Debt/Tot Cap	0.0029	0.016	0.176	0.86
Total Debt/Equity	-0.0004	0.001	-0.405	0.686
SEO Cost	-0.0408	0.007	-5.636	0

The percentage of free float placed is negative and highly significant, indicating that larger placements relative to float are priced at deeper discounts. The SEO cost is also negative and strongly significant, showing that transactions that generated higher value destruction required larger concessions. Valuation multiples and leverage ratios are not significant. Overall, the results confirm that discounts are mainly determined by float absorption and execution costs rather than by firm fundamentals or market background.

Table 8:
CAR Regressions – Extended Sample (without Discount)
To verify whether the significance of discount in the CAR regressions is genuine or driven by collinearity with deal size, we re-estimate the extended specification excluding discount. The results confirm that the explanatory power of the model remains unchanged and that the coefficient on % of Capital is consistently positive and highly significant across all windows. This shows that the discount variable has no independent effect on CARs in the extended specification.

Table 8: CAR Regressions – Extended Sample (without Discount)

	[-2;+2]				[-2;+5]				[-10;+10]			
Variable	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value
% of Capital	0.0382	0.004	10.369	0	0.0285	0.003	8.402	0	0.018	0.004	5.117	0
Index Avg −60 to −1	−11.3109	15.132	−0.747	0.455	−15.5862	13.913	−1.120	0.263	8.3006	14.479	0.573	0.567
Index Volatility −60 to −1	1.7595	4.802	0.366	0.714	0.3526	4.415	0.08	0.936	−0.3529	4.594	−0.077	0.939
Constant	0.0057	0.099	0.057	0.955	0.0198	0.091	0.217	0.828	0.0099	0.095	0.104	0.917

After excluding discount, the explanatory power is virtually unaffected, while % of Capital remains the dominant driver of cumulative abnormal returns. This confirms that deal size alone, rather than the discount, explains variation in aftermarket performance in the extended sample.

Table 9:
CAR Regressions – Reduced Sample (without % of Capital)
We next exclude % of Capital from the reduced specification to test whether discount retains explanatory power in isolation. In this setting, model fit deteriorates sharply, with adjusted R^2 values collapsing to near zero. Discount itself becomes insignificant across all windows, while SEO cost retains its negative sign. This indicates that discount is not an independent driver of CARs, and that its significance in the baseline reduced regressions arises only once deal size is included as a control.

Table 9: CAR Regressions – Reduced Sample (without % of Capital)

	[-2;+2]				[-2;+5]				[-10;+10]			
Variable	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value
Facial Discount	−0.1409	0.136	−1.039	0.3	0.0865	0.116	0.744	0.457	0.153	0.105	1.46	0.145
Cost of the SEO (if negative gain)	−0.0910	0.02	−4.508	0	−0.0850	0.017	−4.914	0	−0.0763	0.016	−4.890	0
Index Avg −60 to −1	−21.9883	21.087	−1.043	0.298	−23.1914	18.073	−1.283	0.2	−3.3079	16.307	−0.203	0.839
Index Volatility −60 to −1	4.5918	6.868	0.669	0.504	3.1612	5.887	0.537	0.592	6.1716	5.312	1.162	0.246
Constant	−0.0417	0.142	−0.293	0.77	−0.0070	0.122	−0.057	0.954	−0.0542	0.11	−0.493	0.623

The loss of explanatory power and the insignificance of discount highlight that size remains the fundamental determinant of abnormal returns. Discounts only matter conditionally—once deal size is accounted for—rather than as a standalone explanatory factor.

Table 10:
CAR Regressions – Reduced Sample (without Discount)
Finally, we estimate the reduced specification excluding discount while retaining % of Capital and SEO cost. This setting improves explanatory power relative to the baseline, with adjusted R^2 values ranging between 0.20 and 0.53 across windows. The coefficient on % of Capital remains strongly positive and highly significant, and SEO cost continues to have a negative and significant effect. These results demonstrate that deal size and issuance cost, rather than the discount, are the genuine drivers of abnormal returns in the reduced specification.

Table 10: CAR Regressions – Reduced Sample (without Discount)

	[-2;+2]				[-2;+5]				[-10;+10]			
Variable	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value	Coefficient	Std. Error	t-Statistic	p-Value
% of Capital	0.0895	0.005	18.542	0	0.0644	0.005	13.441	0	0.0392	0.005	7.799	0
Cost of the SEO (if negative gain)	−0.0806	0.013	−6.109	0	−0.0849	0.013	−6.475	0	−0.0802	0.014	−5.836	0
Index Avg −60 to −1	−9.4398	14.294	−0.660	0.51	−15.2805	14.203	−1.076	0.283	0.8997	14.884	0.06	0.952
Index Volatility −60 to −1	0.8098	4.659	0.174	0.862	0.314	4.629	0.068	0.946	4.3744	4.851	0.902	0.368
Constant	0.0426	0.097	0.442	0.659	0.0482	0.096	0.502	0.616	−0.0237	0.101	−0.236	0.814

Overall, excluding discount strengthens the model: size and SEO cost fully explain aftermarket performance, confirming that discounts should not be interpreted as independent drivers of CARs once these variables are controlled for.

References

Aggarwal, R., Krigman, L. & Womack, K.L. (2002) 'Strategic IPO underpricing, information momentum, and lockup expiration selling', *Journal of Financial Economics*, 66(1), pp. 105–137.

Altınkılıç, O. & Hansen, R.S. (2003) 'Discounting and underpricing in seasoned equity offers', *Journal of Financial Economics*, 69(2), pp. 285–323.

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

Baker, M. & Wurgler, J. (2002) 'Market timing and capital structure', *Journal of Finance*, 57(1), pp. 1–32.

Barberis, N., Shleifer, A. & Vishny, R. (1998) 'A model of investor sentiment', *Journal of Financial Economics*, 49(3), pp. 307–343.

Benveniste, L.M. & Spindt, P.A. (1989) 'How investment bankers determine the offer price and allocation of new issues', *Journal of Financial Economics*, 24(2), pp. 343–361.

Bortolotti, B., Megginson, W.L. & Smart, S.B. (2007) *The rise of accelerated seasoned equity underwritings*. Working Paper 2007.5, Fondazione Eni Enrico Mattei.

Bowen, R.M., Chen, X. & Cheng, Q. (2008) 'Analyst coverage and the cost of raising equity capital: Evidence from underpricing of seasoned equity offerings', *Contemporary Accounting Research*, 25(3), pp. 657–700.

Chen, H.C. & Ritter, J.R. (2000) 'The seven percent solution', *Journal of Finance*, 55(3), pp. 1105–1131.

Choe, H., Masulis, R.W. & Nanda, V. (1993) 'Common stock offerings across the business cycle: Theory and evidence', *Journal of Empirical Finance*, 1(1), pp. 3–31.

Cliff, M.T. & Denis, D.J. (2004) 'Do IPO firms purchase analyst coverage with underpricing?', *Journal of Finance*, 59(6), pp. 2871–2901.

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

Daniel, K., Hirshleifer, D. & Subrahmanyam, A. (1998) 'Investor psychology and security market under- and overreactions', *Journal of Finance*, 53(6), pp. 1839–1885.

DeAngelo, H. & Masulis, R.W. (1980) 'Optimal capital structure under corporate and personal taxation', *Journal of Financial Economics*, 8(1), pp. 3–29.

Duffie, D. (2010) 'Presidential Address: Asset price dynamics with slow-moving capital', *Journal of Finance*, 65(4), pp. 1237–1267.

Eckbo, B.E., Masulis, R.W. & Norli, Ø. (2000) 'Seasoned public offerings: Resolution of the "new issues puzzle"', *Journal of Financial Economics*, 56(2), pp. 251–291.

Fama, E.F. (1998) 'Market efficiency, long-term returns, and behavioral finance', *Journal of Financial Economics*, 49(3), pp. 283–306.

Gao, X. & Ritter, J.R. (2010) 'The marketing of seasoned equity offerings', *Journal of Financial Economics*, 97(1), pp. 33–52.

Greenwood, R. (2008) 'Excess comovement of stock returns: Evidence from cross-sectional variation in Nikkei 225 weights', *Review of Financial Studies*, 21(3), pp. 1153–1186.

Gustafson, M.T. (2018) 'Price pressure and overnight seasoned equity offerings', *Journal of Financial and Quantitative Analysis*, 53(2), pp. 837–866.

Hickman, W.B. (1953) *The Volume of Corporate Bond Financing Since 1900*. Princeton, NJ: Princeton University Press (for NBER).

Hong, H. & Stein, J.C. (2007) 'Disagreement and the stock market', *Journal of Economic Perspectives*, 21(2), pp. 109–128.

Ibbotson, R.G. (1975) 'Price performance of common stock new issues', *Journal of Financial Economics*, 2(3), pp. 235–272.

James, C.M. & Karceski, J. (2006) 'Strength of analyst coverage following IPOs', *Journal of Financial Economics*, 82(1), pp. 1–34.

Kim, K.A. & Shin, H.-H. (2004) 'The puzzling increase in the underpricing of seasoned equity offerings', *Financial Review*, 39(3), pp. 343–365.

Loderer, C.F., Sheehan, D.P. & Kadlec, G.B. (1991) 'The pricing of equity offerings', *Journal of Financial Economics*, 29(1), pp. 35–57.

Loughran, T. & Ritter, J.R. (1995) 'The new issues puzzle', *Journal of Finance*, 50(1), pp. 23–51.

Lucas, D.J. & McDonald, R.L. (1990) 'Equity issues and stock price dynamics', *Journal of Finance*, 45(4), pp. 1019–1043.

Masulis, R.W. (1983) 'The impact of capital structure change on firm value: Some estimates', *Journal of Finance*, 38(1), pp. 107–126.

Merton, R.C. (1987) 'A simple model of capital market equilibrium with incomplete information', *Journal of Finance*, 42(3), pp. 483–510.

Miller, E.M. (1977) 'Risk, uncertainty, and divergence of opinion', *Journal of Finance*, 32(4), pp. 1151–1168.

Miller, M.H. & Rock, K. (1985) 'Dividend policy under asymmetric information', *Journal of Finance*, 40(4), pp. 1031–1051.

Mitchell, M.L. & Stafford, E. (2000) 'Managerial decisions and long-term stock price performance', *Journal of Business*, 73(3), pp. 287–329.

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), pp. 187–221.

Parsons, J.E. & Raviv, A. (1985) 'Underpricing of seasoned issues', *Journal of Financial Economics*, 14(3), pp. 377–397.

Rajan, R.G. & Servaes, H. (1997) 'Analyst following of initial public offerings', *Journal of Finance*, 52(2), pp. 507–529.

Rock, K. (1986) 'Why new issues are underpriced', *Journal of Financial Economics*, 15(1–2), pp. 187–212.

Scholes, M.S. (1972) 'The market for securities: Substitution versus price pressure and the effects of information on share prices', *Journal of Business*, 45(2), pp. 179–211.

Teoh, S.H., Welch, I. & Wong, T.J. (1998) ‘Earnings management and the long-run market performance of seasoned equity offerings’, *Journal of Financial Economics*, 50(1), pp. 63–99.

Tinic, S.M. (1988) ‘Anatomy of initial public offerings of common stock’, *Journal of Finance*, 43(4), pp. 789–822.